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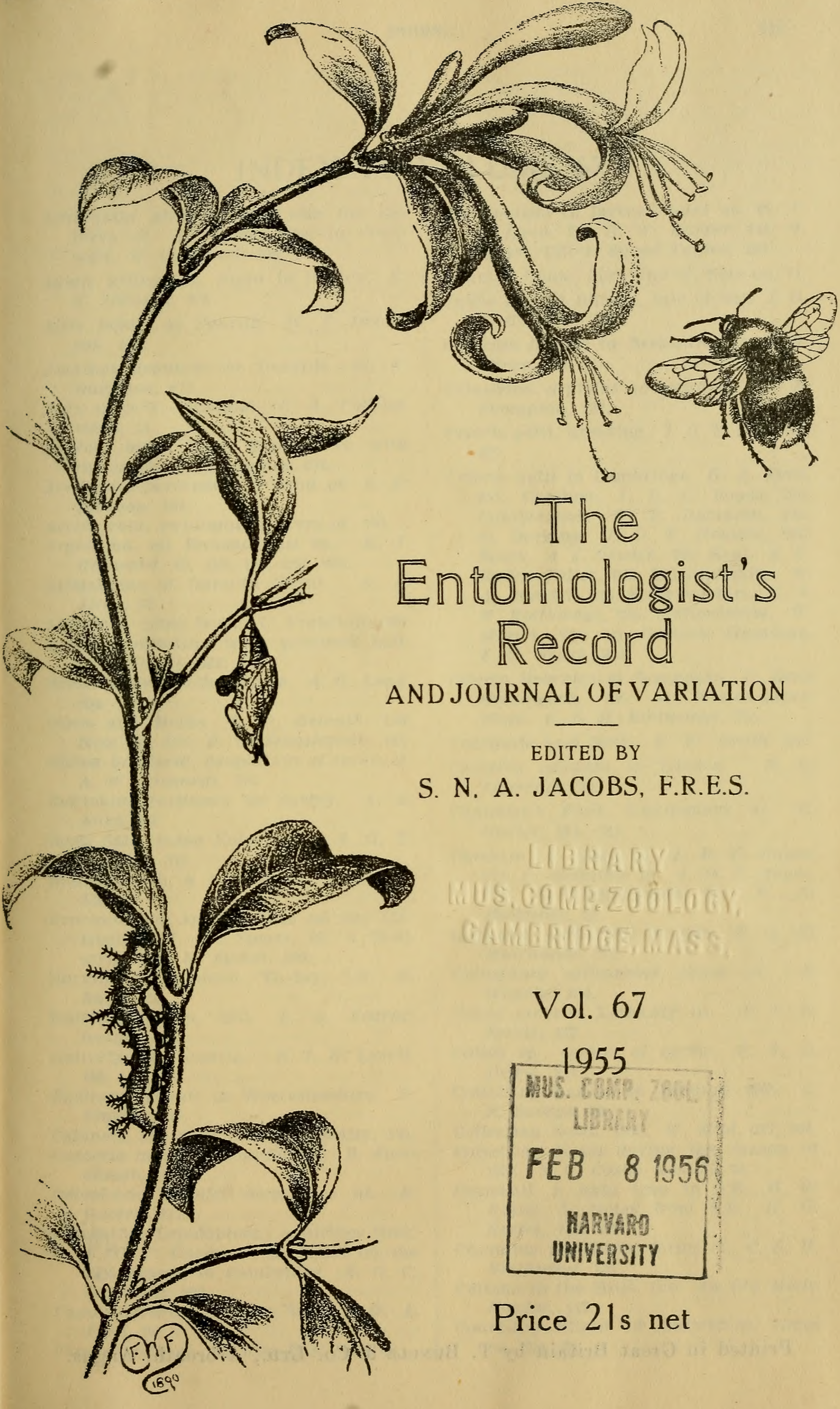

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AND JOURNAL OF VARIATION

EDITED BY
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A Note on *Agapetes (Melanargia) galathea* L. ab. *aperta* Rebel

By A. E. Collier.

There are, or were, many flourishing colonies of *A. galathea* in Northamptonshire, and for fifteen years I searched a number of them regularly, without seeing anything in the nature of a major variety. I was, therefore, delighted to catch, on 24th July 1948, a fresh female aberration, which proved to be ab. *aperta* Rebel. The opportunity of attempting to investigate its genetics was too good to miss, and the insect was accordingly caged. Within a week it had laid 118 eggs, and these began to hatch on 16th August.

Having had no experience of rearing *A. galathea* I proceeded to treat the larvae as I would those of *Aphantopus hyperantus*, sleeving them on a pot of growing grass, and keeping the pot in the south window of an unheated room.

It was soon apparent that a considerable number of the larvae were feeding, while the majority remained in their original state, but persisted in leaving the grass, and settling on the muslin sleeve. By midwinter those which had been feeding were in their second instar while the remainder had gradually died off, probably through conditions being over dry for their taste.

There was a noticeable diapause for three to four weeks from mid-January to mid-February.

Early in May, 1949, the survivors, 34 in number, were transferred to a cage and fed on cut grass. Their length at that stage was about 15 mm. All these larvae pupated and produced, in July, 34 imagines, of which 24 were typical *galathea* and 10 were ab. *aperta* (4 ♂♂ and 6 ♀♀). One successful mating was obtained between two of the aberrations, and another between a pair of typicals.

Larvae from each pairing were first observed on 2nd August 1949. On this occasion, to avoid undue dryness, the sleeved pots were kept out of doors; but continuous rain and constant high humidity had disastrous results, and no larvae from the *aperta* pair survived the winter.

From the typical brood 8 imagines appeared in August 1950, all rather small, and all typical. Results so far were genetically inconclusive, but it was quite clear that the character was not a simple recessive.

During the summers of 1949 and 1950 I had frequently visited the colony, but I had seen only one male aberration, which I had been unable to catch, owing to the obstructive tactics of a thicket of bramble and blackthorn.

In view of the possibility of capturing a male in 1951 I decided to prepare a stock of unrelated typical *galathea*. Wild females were taken from a distant colony, and a number of eggs were laid in July 1950. The larvae from these were brought through the winter out of doors, on growing grass, but protected from predators, and from direct and excessive rain. About 50 per cent came through successfully and produced full size, typical, imagines from mid-July 1951.

From 17th July till 5th August I visited the *aperta* colony on every fine day. The total number of *galathea* flying was considerably smaller than in 1948, but I was fortunate enough to find, and capture, two males, and two females, all completely fresh. At a very rough estimate these represented about 1 in 300 of the population. My breeding programme then took shape as follows.

Brood A.51. 17.vii.51. Lightly marked ♂ *aperta* × typical ♀. No coition was observed, but eggs were laid from 20th July, and these proved to be fertile.

Brood B.51. 22.vii.51. A very dark bordered wild *aperta* ♂ × typical ♀. This male had a considerable peppering of black scales in the lunules of the scalloped border of the underside of the hind wings. Coition was observed on the 22nd, and fertile eggs were laid from 24th July onward.

EXPLANATION OF PLATE I.

Above: *Agapetes galathea* L. Heterozygotes. A black peppered, and a typical, upperside, with two extreme undersides. ♂♂ bred 1953.

Below: *Agapetes galathea* L. Homozygotes. A typical, and a rayed upperside, with two extreme undersides. ♂♂ bred 1953.

Brood C.51. 27.vii.51. A wild *aperta* ♀ was captured and caged. Fertile eggs were laid from 30th July.

Brood D.51. 5.viii.51. A wild *aperta* ♀ captured, which laid fertile eggs from 7th August.

Owing to a change in residence the above broods had to be portable and they were therefore each placed on a turf in the bottom of a 3-gallon bucket, with muslin over the top. These buckets were moved to Surrey in September, holes were pierced in the base, and the buckets were then sunk about 3 inches into the ground. The usual steps were taken to prevent direct rain falling into the bucket.

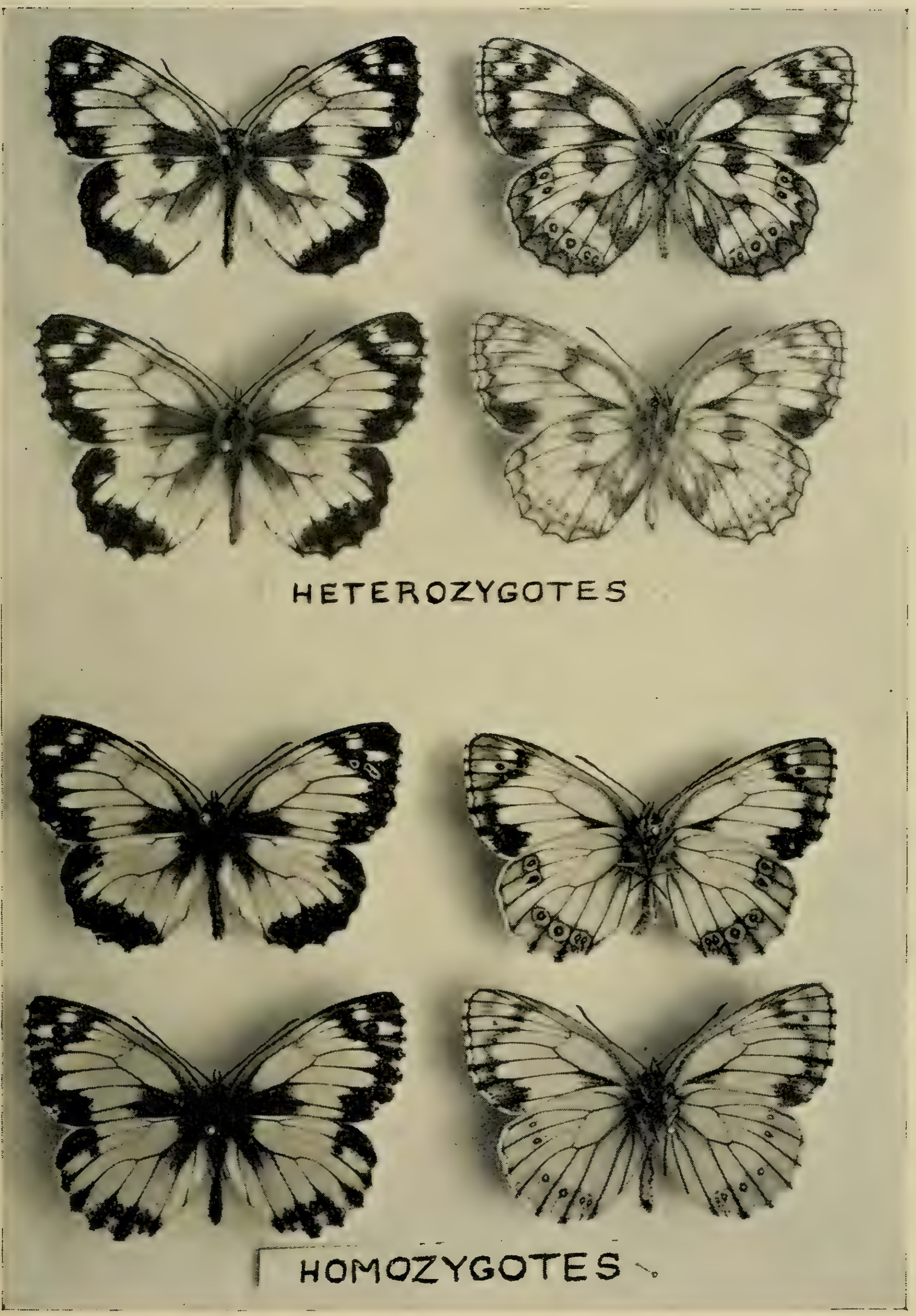
The results of the 1951 broods were as follows.

A.51. A healthy brood producing, in July 1952, 50 per cent typical *galathea* and 50 per cent ab. *aperta*. Among the latter were a few males with very lightly marked borders.

B.51. A good brood producing 47 per cent. typical *galathea* and 53 per cent ab. *aperta*. Among the latter were some males, and, to a lesser extent, females, with a dense peppering of black scales in the lunules of the underside of the hind wings.

C.51. A very delicate lot, with only two survivors, one being typical *galathea* and one ab. *aperta*.

D.51. A healthy brood producing 40 per cent type and 60 per cent ab. *aperta*.


HETEROZYGOTES
HOMOZYGOTES

The above results strengthened my suspicions that the *aperta* character was dominant to type, and that the captured and bred aberrations would prove to be heterozygous.

My breeding programme for 1952 was as follows:
A.52. Dark lunuled ♂ *aperta* (*B.51*) × ♀ *aperta* (*A.51*).
B.52. Lightly marked ♂ *aperta* (*A.51*) × ♀ *aperta* (*A.51*).
C.52. Typical ♂ *aperta* (*D.51*) × ♀ *aperta* (*D.51*).
D.52. Typical ♂ *aperta* (*A.51*) × Type ♀ (*D.51*).

Coition was observed in all cases, and the eggs in each brood were fertile. The results in 1953 were most satisfactory, in that a new and distinctive form appeared in each of the broods *A*, *B*. and *C*. The percentage results were:—

	Type.	ab. *aperta*	new aberration
A.52	18%	56%	26%
B.52	30%	46%	24%
C.52	19%	51%	30%
D.52	48%	52%	

The new aberrations were, in one respect, strikingly different from ab. *aperta*, while in other respects the *aperta* character was enhanced and intensified. Whereas the upperside black borders of *aperta* varied in density, and frequently failed to reach the base of the fringes, in the new variety the borders were uniformly dense and dark, and in all cases extended to the fringe base. In addition the costal and central areas of both sides of all wings were completely clear of any marking, or of any peppering of black scales. The real distinguishing feature, however, of the new ab. was the complete disappearance of the scalloped submarginal line round the outer borders on the underside of all four wings.

Secondary varieties were also produced in these broods:

A.52. Among the *aperta* males, and to a lesser extent among the females, were some nice examples with heavily peppered lunules round the border of the underside of the hind wings.

B.52. This was a delicate brood, but it produced a beautiful variation, in both sexes, of the new aberration. In this variation the insect has a rayed appearance, due to the intrusion of white patches from the fringe base, into the black border, between the neurations.

C.52. No new variety, but a healthy, typical lot of all three classes.
D.52. Of academic interest only.

There appeared, now, to be little doubt that the new aberration was the homozygous form of ab. *aperta*; but, to confirm this, and to carry on the strain, the following pairings were effected:
A.53. Rayed ♂ *ab. nov.* (*B.52*) × ♀ *ab. nov.* (*A.52*).
B.53. ♂ *ab nov.* (*C.52*) × ♀ *ab. nov.* (*A.52*).
C.53. Dark bordered ♂ ab. *aperta* (*A.52*) × ♀ ab. *aperta* (*C.52*).

The results in 1954 were as follows:

A.53. Very delicate brood, with few survivors, but all with the rayed *ab. nov.* character.

B.53. A strong brood, all typical *ab. nov.*

C.53. 25% type, 50% ab. *aperta*, 25% *ab. nov.* Underside hind wing borders of ab. *aperta* of varying degrees of darkness.

Having now proved the dominance of the character, and shown that the new aberration was the homozygous form of ab. *aperta*, the heterozygote, my aim was to proceed further with the rayed forms, and to continue the strain. With these objectives I arranged the following matings:

A.54. Rayed ♂ homozygote (*A.53*) × rayed ♀ (*A.53*).
B.54. Type ♂ (*C.53*) × rayed ♀ (*A.53*).
C.54. Rayed ♂ (*A.53*) × ♀ homozygote (*B.53*).
D.54. ♂ heterozygote (*C.53*) × ♀ heterozygote (*C.53*).
E.54. ♂ heterozygote (*C.53*) × ♀ homozygote (*B.53*).

In all the above cases matings were readily obtained, and eggs were laid; but those of broods *A*, *B*, and *C* proved to be infertile. The eggs from *D* and *E* were fertile, and larvae began to emerge on 9th August. Larvae and eggs were placed outside, with all the precautions which, for four years, had proved successful.

Three weeks later the colonies were examined, but no trace could be found of larvae, eggs, or the remains of eggshells. A very careful examination of the grass revealed no recognisable predator, the only abnormal condition being the presence of very large piles of worm cast. The disappearance of eggs and larvae must therefore remain a mystery.

Some general notes may be of interest.

Mating. Little difficulty was found in obtaining a pairing. All the cages used were of the same simple construction, consisting of a wine case with the bottom replaced by a sliding glass panel, and the front covered with muslin. The males were more ready to pair after being a few days in the cage alone. Newly emerged females were then introduced about midday, and, if the afternoon were reasonably warm, pairing took place almost immediately.

Egg-laying. The female will lay freely, without flying about, from a position on the side or front of the cage, with the head upwards, the wings slightly extended, and the abdomen raised at an angle of about 45°. If a pot of long grass is placed in the cage the female will flutter through it occasionally, and, while so doing, will eject an egg. I found it convenient to collect the eggs each evening, and to keep them in an equable temperature until they began to hatch, when they and the larvae were placed in their winter quarters. After my experience in 1954 I think it would be wiser to keep all the eggs until they have hatched, placing the larvae on the grass as they emerge, and when they have consumed their portion of eggshell. It would also be advisable to split a brood up into, say, four parts as an insurance against accidents.

Winter quarters. A turf of grass, not growing too densely, and not of too luscious a type, is freed, as far as possible, of all predators. It is then sunk into the ground with a bottomless bucket round it. The top of the bucket is closed with muslin, and a sheet of glass is placed six inches above the muslin to allow only a little driven rain to enter.

On any mild day during the winter larvae will be seen feeding, and the majority will be in their second instar well before the period of diapause in January-February. In March, however, a few larvae appear, still in their first instar; these lag behind the others and produce late, and rather small, imagines.

Early in May the larvae, now about 15 mm. in length, are moved to a cage and fed on cut grass. In due course they retire to the floor, under a layer of dry grass, where they lie on their backs, gregariously, until they pupate.

Pupae. A few days before emergence the sex, and the pattern of the fore wings, can be seen. This is very helpful if one is planning a selective breeding programme.

Variation in the imago.

Ab. *aperta*, heterozygote. On the upperside there can be slight variations in the density and width of the black borders, and also in the peppering of black scales from the costa into the central area of the fore wings. On the underside, particularly in the males, there is considerable variation; some specimens being almost free from markings in the central areas, others being more heavily marked than type.

Homozygote: Apart from the major variation of the rayed type there is little variety on the uppersides of the wings, which are distinguished by their absolutely clear white, or pale cream, costal and central areas, and by their uniformly dark and dense borders. On the underside the chief variation occurs in the ocelli round the border of the hind wings. In some cases these are large and well marked, with strongly defined surrounds; in others the surrounds disappear and the ocelli dwindle to very small circles, or almost to pin points.

The homozygotes are generally from 5 to 8 mm. less in wing span than type. Whilst the heterozygote males are approximately the same size as type, the females are noticeably smaller than typical *galathea*.

The variations described above, in both forms of ab. *aperta*, are much less marked in the females than in the males.

From friends who have regularly visited the colony I hear that, to the best of their knowledge, ab. *aperta* has not been seen on the wing since 1951, and the colony itself has greatly deteriorated in numbers.

A Light-Trap in South-East Cornwall, 1954

By Colonel H. G. Rossel.

After several seasons' sugaring during which I took for the most part only the commoner Noctuae, I set up a m.v. light-trap in my garden near Fowey in April 1954. This is certainly the first occasion on which a mercury vapour trap has been used in this area and it has caused a good deal of interest. In fact no one locally can remember any previous collector and I have not met any other resident of the district who is a lepidopterist. However, I expect S.E. Cornwall has been thoroughly explored at some time or other from this point of view.

My locality is a small village on the east bank of an estuary, about one mile from the mouth. The river cliffs are covered up to 100 feet from tide-mark, *i.e.* where they are too steep for cultivation or grazing, with a patchy growth of scrub oak, sycamore and ash. Above this is gorse, hawthorn and sloe. Birch, alder, beech and sallow are scarce, and there are a few artificially planted conifers. There are a few elms in and around the village, including my garden. Inland, the usual bare Cornish landscape prevails, divided by stone walling and with small woods in sheltered hollows.

The whole area is much exposed to the frequent S. and W. gales, and does not strike one as 'promising' for collecting. However, in the past six months I have obtained a number of species that I certainly never anticipated, especially in such a poor summer as we have had. The commonest of the Sphingidae was undoubtedly *Sphinx ligustri* L., several of which I turned out of the trap almost daily from 17th May to 25th July. Next numerous was *Smerinthus ocellata* L., closely followed by *Deilephila elpenor* L., *Laothoe populi* L., and *Mimas tiliae* L., in that order. *Macroglossum stellatarum* L. (very scarce this year) was in the trap on 3rd August. I had hoped for *Herse convolvuli* L., but none arrived.

Among Bombyces, I was visited by one *Harpyia hermelina* Göze, several *Cerura vinula* L., and thirteen *Stauropus fagi* L. (all males) between 1st June and 24th July. There were a number of *Drymonia ruficornis* Hufn., *Pheosia tremula* Cl. (latest 31st August), *Notodonta ziczac* L. (latest 15th August), *N. anceps* Göze, *Lophopteryx capucina* L., and one *Pterostoma palpina* Cl. *Phalera bucephala* L. and *Habrosyne pyritoides* Hufn. (*derasa* L.) were plentiful, and *Thyatira batis* L. and *Polyploca ridens* Fab. were in small numbers. There were quantities of *Dasychira pudibunda* L. and *Malacosoma neustria* L., but only one *Euproctis similis* Fuess. (8th Sept.). *Philudoria potatoria* L. was abundant, as usual in wet seasons, but *Lasiocampa quercus* var. *callunae* Palmer, which is common in the area, was scarce. One *Bena prasinana* L. (*fagana* Fab.) was caught. The trap in May and June was usually full of *Spilosoma lubricipeda* L., *S. lutea* Hufn., and *Cycnia mendica* Cl. (mostly males). Only four *Phragmatobia fuliginosa* L. were taken, but large numbers of *Arctia villica* L. and *A. caja* L. were turned out of the trap in June and July respectively (the last date for *caja* being 17th August). *Callimorpha jacobaeae* L. and *Eilema lurideola* Zk. were cmomon, and *Atolmis rubricollis* L., *Lithosia quadra* L. and *Miltochrista miniata* Forst. were also present.

Among the Noctuae (Agrotides) the more interesting, to me, were *Colocasia coryli* L., *Apatele alni* L., *Craniophora ligustri* Schiff., *Agrotis trux* Hb. (*lunigera* Steph.), *Triphaena orbona* Hufn., *Lampra fimbriata* Schreb., *Hadena albimacula* Bork., *H. bombycina* Hufn., *H. thalassina* Hufn., *Eumichtis lichenea* Hüb., *Tholera cespitis* Schiff., *Antitype flavicincta* Schiff., and *Aporophyla nigra* Haw.

I also collected 20 specimens of *Leucania l-album* L., one *L. unipuncta* Haw. (at sugar on 15th March), one *L. vitellina* Hb., one *L. putrescens* Hb., and one *Caradrina blanda* Schiff. All these 'wainscots' were kindly identified by Mr. Tams. Only one *Panolis flammea* Schiff. was taken; *Cucullia verbasci* L. and *C. chamomillae* Schiff. were in small numbers. Among the Plusiinae the commonest besides *P. gamma* were *P. chrysitis* L., *P. pulchrina* Haw., *Abrostola triplasia* L. and *A. tripartita* Hufn., followed by *P. bractea* Schiff. and *P. festucae* L.

Among the Geometridae the more conspicuous were *Campaea margaritata* L., *Selenia lunaria* Schiff., *S. tetralunaria* Hufn., *Deuteronomos fuscantaria* Haw., *Ennomos quercinaria* Hufn., *Plagodis dolabraria* L., and *Ourapteryx sambucaria* L., with large numbers of *Lycia hirtaria* Cl., *Biston betularia* L., *B. strataria* Hufn., and the *conversaria* variety of *Alcis repandata* L.

During June, I had the pleasure of meeting Mr. and Mrs. F. W. Byers, on holiday in this area. We made several attempts to obtain certain insects and larvae, but were so uniformly unsuccessful with the latter that I fear my visitors left with an impression that in South Cornwall, lepidoptera must be produced by fission or other unorthodox methods. We were, however, successful in obtaining *Maculinea arion* L., but not *Melitaea athalia* Rott., the lovely wooded spot in which I found this fritillary on the West Looe river in 1951 having since been desecrated by the Forestry Commission with a crop of pit props and rabbit wire. A locality near the Gribben Head, in which I found *Strymonidia w-album* Kn. in 1953, did not yield this hairstreak in this season.

Attempts in my motor-boat to obtain larvae of *Antitype xanthomista* Hüb. in the sea thrift at tide-mark were not successful, and I doubt if the species occurs in this area.

It will be interesting to see what the light-trap may produce in a summer better than the past appalling season. To avoid disturbance to my neighbours I am unable to place the trap on one of my small terraced lawns, but have established it in a group of elms adjacent to the neighbouring National Trust land. It has been in daily use in all weathers from 15th April to 30th October, the date of this Note. The number of moths now coming is so small that I shall close down the trap until next March.

During the mild, wet and warm weather in October masses of house flies were found in the trap every morning. All through the summer these flies have been a plague in every field and lane in this district, far worse than in an ordinary year; but they did not enter the trap, I am thankful to say (in view of the fouling they cause) until this month.

An unexpected visitor to the trap was a *Vanessa cardui* L. on the warm, wet night of 27th October.

Collecting Notes from N.E. Hampshire, 1954

By A. W. Richards.

It would be an unwarranted generalisation to regard the season now rapidly drawing to its close as the worst ever, for the numbers of species of macrolepidoptera met with in the winged state—336 to date compared with 337 last year and 365 in 1949 (my best)—is not so bad. My immediate vicinity has suffered an influx of 3,000 'housing estaters' and, of course, all agricultural land has disappeared beneath kerb and concrete. I have still intact my two acres of mixed woodland, with immediately beyond the badly scarred W.D. commons. I much prefer to work an area to its limit rather than rush from one already well known locality to another but, with the certainty of a further influx of 2,000 human immigrants in the next six months, I fear I shall soon be writing my collecting notes from 'pastures new'.

Judging from crude totals the year has been very poor; at light I have not had a single prolific night, whilst sugaring has been a waste of time. I never cease to marvel at the huge numbers which visit the sugar patch whenever I visit my old Derbyshire home, for, here, I have not experienced a good sugaring season since the war.

Most species have been scarce. Among butterflies I have not seen a single *T. quercus* L. or *C. crocea* Fourc., and only one each of *V. cardui* L., and *A. iris* L. I had almost given up *E. semele* L. as lost when, on

11th August, I met with a dozen just over the Surrey border. This, together with *P. argus* L., swarmed over the whole Aldershot district before the outbreak of war, but the latter, too, has become very local. Whilst I have only met with three specimens of *L. bellargus* Rott., and *C. minimus* Fuess., and few more of *L. phlaeas* L. and *P. icarus* Lat., *S. w-album* Knoch was plentiful in its single locality, where I also beat two *T. betulae* L. for the first time. *H. comma* L. was unusually abundant over the border in Surrey, quite fresh specimens being about from the beginning of August to early September. *A. urticae* has kept up its numbers; I counted over 200 on dandelions on the Frimley Sewage Farm one April day, and over 150 there on 2nd October. Considering the many thousands of this species and *N. io* L. I bred this year variation was small, though from one brood of the latter two var. *belisaria* and two var. *semi-ocellata* emerged.

Among the Heterocera *M. persicariae* L. and *A. rumicis* L. reached an all-time maximum of abundance. *H. pinastri* L. and *D. elpenor* L. were frequent visitors to the m.v. lamp but 'hawks' were scarce on the whole and I did not meet with a single *S. ocellatus* L., of which I could collect over a hundred larvae in a couple of hours in the late '20's.

Every season, however, has its compensations and a goodly number of unusual varieties turned up to lengthen my series, whilst on 2nd September, *E. deplana* Esp. turned up for the first time here.

Though *S. s. striolatum* Charp. (Odon.) was very scarce, *S. danae* Sulz. and *S. sanguineum* Müll., were extraordinarily abundant at Fleet and Frensham respectively.

Lastly, I have never known such a paucity of Pyralides, the only 'micros' I have time to study, so, taking all in all, I think I have never before looked forward so eagerly to the turn of the days heralding a new beginning, nor back on a summer that is gone with less regret.

Farnborough, Hants.

Inverness-shire in 1954

By Commander G. W. Harper, R.N. (Retd.), F.R.E.S.

The winter of 1953-54 in the Scottish Highlands was the exact opposite of the previous one; it was extremely mild and dry until mid-December when a short sharp frost occurred to check any unseasonable emergences of insects that might otherwise have happened, and were in fact recorded in England.

Real winter weather, with moderate snowfall and frost, began in mid-January, continuing well into February, when a slow thaw lasted until the 17th, on which date the first migrant birds, plovers and oystercatchers, passed down the Spey valley. On 21st February the first moth of the year, a ♂ *Phigalia pedaria* Fab., was seen at a street lamp, and others were seen well into March, when they ceased to appear.

March on the whole was cold but sunny. I started my m.v. light-trap on the 11th and found that the hibernators were moving: *Conistra vaccinii* L. and *Xylena vetusta* Hüb.; but it was not until the 20th that the first *Orthosia gothica* L. and *Achlya flavicornis* L. appeared, and thereafter the usual Spring moths joined these two species tardily and in small numbers; the first *Brachionycha nubeculosa* Esp. for example I found drying its wings on the 31st March, an average date.

April lived up to its reputation, producing very mixed weather—snow, rain, gales, frosts and sunshine, and during the latter a notable profusion of the fine large race of *Archiearis parthenias* L. occurred in all the birch woods. *Poecilopsis lapponaria* Bdv. did not appear until the 8th and was not fully out for another ten days, together with *Endromis versicolora* L. and *Saturnia pavonia* L. I was very pleased to add two new species to my list for the Badenoch district, both taken at my m.v. light-trap: *Biston strataria* Hufn. on the 2nd and *Cucullia chamomillae* Schiff. on the 21st. Emergence of Spring species continued erratically, a fresh ♂ *B. nubeculosa* being found as late as the 24th, while two days later a ♂ *Cerura vinula* L. came to my m.v. light. At the same time *Isturgia carbonaria* Cl and *Anarta cordigera* Thun. were fully out, about normal dates for them, as also for the butterflies *Pieris napi* L. and *Callophrys rubi* L., which were just beginning to appear.

May came in to the accompaniment of heavy snowstorms with a very cold North wind, which persisted for most of the month, though with a few days of warm sunshine later. My m.v. trap catches continued to show very small total numbers of individuals, averaging only 20 each night; but the proportion of species rose steadily to more than half the total, and this phenomenon remained very evident all through the season. I consider this ratio to be a very good index of "emerging weather"; a pronounced high ratio such as we have had here in Northern Scotland this season shows clearly that most species have prolonged their emergence periods beyond the normal, and this was borne out by direct observation. For example, *O. gothica* was still arriving at the m.v. trap in small numbers on 31st May, ten weeks after its first appearance.

May, however, had several bright spots, including three more new records for the Badenoch district: on the 8th a ♂ *Eupithecia abbreviata* Steph. was captured flying round an oak tree near Kincraig; on the 19th *Pterostoma palpina* Cl., a very pale coloured ♂ came to my m.v. light, and on the 26th and subsequent days several *Euclidimera mi* Cl. were seen and taken in marshy ground near Kincraig and Laggan. *Odontosia carmelita* Esp. did not appear until the 14th, and then only in moderate numbers; but the greatest pleasure is to record the fact that *Anthocharis cardamines* L. has apparently succeeded in establishing itself along the Spey valley at least as far as Laggan Bridge. The first ♂ was seen on the 16th, and thereafter well into June this delightful species was seen commonly everywhere, and I succeeded in taking ♀♀ and eggs on *Cardamine pratensis* in several places. It is greatly to be hoped that this extension of its range in recent years will be well maintained. The end of the month also saw the emergence of a number of the Spring brood of *Lycaena phlaeas* L., the first time I have seen this brood in Scotland, and also of a profusion of *Dyscia fagaria* Thun. on the moors, where they were to be found sitting on the heather tops at night; but I never found one by day on the ground in the classical manner! *Anarta melanopa* Thun. was also abundant from the 15th onwards, flying on all the local high tops in sunshine.

June began with cold winds and nights as usual, but sunny days. All the usual species were present in small numbers, and one new species to be recorded for Badenoch, *Pseudopanthera macularia* L., I found on the 9th in a very restricted area near Newtonmore. The only immigrant moth seen this year, a worn *Plusia gamma* L., came to m.v. light on the 8th, but very few offspring appeared in the autumn. The rest of the month I spent in East Anglia where I found quite good weather and a good number of insects, whereas in Scotland the weather had steadily deteriorated, with much rain and high northerly winds.

July collecting weather continued to be execrable: no sunshine, much cloud and wind, with cold nights; on only six of the latter was the total m.v. trap catch in excess of a hundred, the largest being 237 with 50 species, of which 48 individuals were *Apamea monoglypha* Hufn.! Sugar was even more unattractive on the few nights when it was possible. One pleasant and successful enterprise was the discovery of the breeding places of *Hadena conspersa* Schiff., an uncommon species, as are its foodplants, in this area. I noticed last year that in the stony river banks a very distinctive flora was to be seen in small patches, including wild thyme and scattered plants of *Silene maritima*. Among the latter I was delighted, on 7th and 9th July, to take ♀♀ of *H. conspersa* engaged in egg-laying. The form is normal black and white, only a little darker than Southern English forms. Butterflies continued to be scarce, the usual Lycaenids not appearing until the 16th, three weeks later than usual. On this date also a few worn *Pieris brassicae* L. and *P. rapae* L. suddenly appeared in the valley, probably immigrants, both species being normally very scarce here. Among the moths, *Notodonta dromedarius* L. and *Eurois occulta* L. were more plentiful than usual; the latter did not appear until the 18th, also three weeks later than usual, and continued on to September!

August made a slight improvement in the weather, more particularly the first and last weeks. There was very little sunshine, and butterflies were still scarce, particularly the second brood of *P. napi*. I found more butterflies, including the latter, *Argynnis aglaia* L., *Maniola jurtina* L., and *Polyommatus icarus* Rott., asleep at night when looking for moths with a paraffin lamp than flying by day! Close cloudy weather, however, produced for the first time a large concentrated emergence of moths, a record m.v. trap catch for the last three years occurring on 6th August, with no less than 408 individuals, including 89 *A. monoglypha*, 40 *Amathes baja* Schiff., 22 *Triphaena pronuba*, 17 *E. occulta*, together with many June laggards such as *D. fagaria* and *Cucullia umbratica* L. *Apamea exulis* Lef. ssp. *assimilis* Dbld. did not appear here at all this year, but Mr. E. C. Pelham-Clinton informs me that he took three at sugar near Rannoch in July and one near Edinburgh in September. *Amathes alpicola* Zett. was moderately common, several pupae being obtained in June and I had the great pleasure of finding a fresh ♂ on a rock at 2,400 feet on the south side of Geal-charn in the Cairngorms in the afternoon of 12th August.

Two more new species were recorded for the Badenoch district: a fine ♀ *Epirrhoe galiata* Schiff. came to light on the 5th and my son Michael discovered a good colony of *Eupithecia tenuiata* Hb. in sallows at Newtonmore.

The last week of the month saw the appearance of many of the autumn species such as *Amathes glareosa* Esp., *Aporophyla lutulenta* Schiff. and *A. nigra* Haw., with the Hydraecias, all about a fortnight later than usual.

September continued wet and windy, becoming cold as well by the middle of the month. Larvae were fairly plentiful, especially *Tethea or*

Schiff. on aspen, and *Hydriomena ruberata* Hufn. on sallow, while those of *Macrothylacia rubi* L. and *Phragmatobia fuliginosa* L. were extraordinarily abundant on the moors. The latter were unusually variable also, from completely black without markings to pale reddish brown with a pale brown dorsal stripe.

All butterflies virtually disappeared in September. Only one *Vanessa atalanta* L. was seen the whole year, and this I think was a south-bound migrant on 17th September hurrying away from our fearful climate! *Aglais urticae* L. produced only one second brood insect as far as I could see, on 23rd September. I have been closely observing this species since I came here three years ago and I can find no reference in the standard textbooks to the undoubted fact that here in Northern Scotland it is mainly univoltine, the ''summer'' first brood emerging between the end of July and end of August according to weather, and in bad seasons such as this going into hibernation almost at once. In a sunny summer a few reproduce themselves as a partial second brood which emerges in September. Last year, for example, two wild pupae produced imagines on the 29th and 30th September. The month ended with snow on all the hills as low as 1,500 feet, and sharp frosts.

Early October was cloudy, mild and wet, and many of the late autumn species emerged, including many *Agrochola circellaris* Hufn. which I found drying their wings after dark on the grass stems well away from the trunks of our few elm trees. *A. macilenta* Hb. and *Oporinia dilutata* Schiff. were also abundant, unlike *A. lota* Cl. which was rare this year. The season virtually closed at the end of the month, by which time *Poecilocampa populi* L. was beginning to get worn; this showed that it was still about a fortnight late, and snow and frosts in early November brought the curtain down.

The year 1954 was a continuously cold, cloudy, windy year, following a late Spring. It was remarkable for poor collecting weather, few migrants, and prolonged emergence periods of almost all species. Nevertheless a few species were present in unusually large numbers, and fewer still unusually scarce. The butterflies suffered most.

Ants in S.W. Scotland

By C. A. Collingwood.

Since the publication of a previous note (1953, *Ent. Rec.*, **65**, 10, pp. 297-298) on ants in Galloway, the area was visited again on the 12th and 13th June 1954, and the following additional records made:

Ayrshire:—On the coast near Girvan, *Lasius umbratus* Nyl.* was present nesting under several stones; 3 dead workers were also found in an adjacent *Lasius niger* L. colony. *Lasius flavus* F. was also abundant in the locality. Other ants present in this area included *Leptothorax acervoruma* F.*, *Myrmica laevinodis* Nyl., *Myrmica rubra* L., *Myrmica sabuleti* Meinert* and *Myrmica lobicornis* Nyl.*

Yarrow, 1954, *Trans. Soc. Brit. Ent.*, 11, 11, 229-244, recently published a review of the British ants of the *Formica fusca* group. He points out that the ant hitherto recorded under the name *Formica fusca* L. in North Britain in nearly all cases should be referred to *Formica lemani* Bondroit, a similar species, but distinguished in the worker caste by coarser puncturation of the head and the presence of abundant bristles on the pronotum. As in the rest of Scotland *F. lemani* occurs abundantly in Ayrshire, Wigtown, Kirkcudbright and Dumfriesshire, with the exception of an area in the Mull of Galloway, Wigtown, where a few colonies of *Formica fusca* were found in a small sheltered valley. Yarrow states that *F. fusca* L. does not occur further north in Britain than the Witherslack area of Westmorland (Vice-county 69) except for the islands of Tiree and Eigg. A slight colour variation of *F. lemani* occurred near Drummore, Wigtown, a number of somewhat reddish workers being taken on a shale heap on 13th June.

*Leptothorax acervorum** was also taken at Drummore, Wigtown, and a worker of *Myrmica lobicornis* was found on the cliffs at Abbey Head Kirkcudbright.

*New County Record.

A list of the ants now known to occur in the area is given below:—

	Ayrshire.	Wigtown.	Kirkcudbright.	Dumfries.
Formica fusca L.			Mull of Galloway	
,, *lemani* Bondroit	Abundant	Abundant	Abundant	Abundant
Lasius niger L.	Common	Common	Common	Common
,, alienus Foerst.		Luce sands		
,, *umbratus* Nyl.	Girvan			
,, *flavus* F.	Common	Common	Common	Common
Myrmica rubra L.	Abundant	Abundant	Abundant	Abundant
,, *laevinodis* Nyl.	Common	Common	Common	Common
,, *sulcinodis* Nyl.	Irvine Moor	Luce sands		
,, *scabrinodis* Nyl.	Abundant	Abundant	Abundant	Abundant
,, *sabuleti* Meinert	Girvan	Mull of Galloway	New Galloway	
,, *lobicornis* Nyl.	Girvan	Mull of Galloway	New Galloway and Abbey Head	
Leptothorax acervorum F.	Girvan	Drummore	Common	Common

In addition Nelmes (1938, *Journ. Animal Ecology*, 7, p. 102) has recorded one of the forms of the wood ant, *Formica rufa*, from a few localities in Ayrshire, but Dr. Yarrow informs me that he has seen no specimens from Ayrshire and was not able to find this ant on a recent visit to that county.

Service (1896, Scott Elliot's *Flora Dumfriesshire*, XV) has recorded *Tapinoma erraticum* Latr. from Dumfries but this species is characteristically found on warm dry heathland and is not otherwise known to occur further north than Surrey in the British Isles. This record would therefore appear to be unlikely.

Microlepidoptera in Cheshire and South Lancashire in 1953/54

By H. N. Michaelis.

In spite of the cool wet weather of the past two summers, the week-ends being particularly depressing, a few species new to the county records were found and some confirmations of old records were received.

Pyralis glaucinalis L. A number of specimens were taken at Wilmslow by G. S. Kloet in 1954. A single *Hypsopygia costalis* Fabr., was also taken.

Platyptilia ochrodactyla Schiff. In June 1954, R. Prichard showed me some green larvae which he had found in the upper part of stems of tansy at Storeton, Cheshire. They were recognised as "Plume" larvae and he kindly took me to the place where they were found. The larvae were in fair numbers, almost full grown, and eight moths were bred in July. In "Records of Pyralidina found in Cheshire and North Wales" in "Cheshire, North and mid-Wales Natural History" Vol. IV, I regret I cast some doubt on the authenticity of the nineteenth century records from Wirral. In repentance, I must apologise to the shades of C. S. Gregson and J. F. Brockholes, the original recorders of this species. (See also a note on this species by Mr. H. C. Huggins, F.R.E.S., *Ent. Rec.*, Vol. 66, p. 271.)

Agyroploce semifasciana Haw. Not previously recorded for Cheshire, H. L. Burrows bred this moth from *Salix* at Delamere.

Hemimene saturnana Guen. While obtaining larvae of *P. ochrodactyla* with Mr. Prichard, we took a series of a dark *Hemimene* flying among tansy at Storeton which proved to be *H. saturnana*. I can find no previous record for Cheshire.

Ernarmonia roseticolana Zell. and *E. janthinana* Dup. Neither species has been recorded for many years in Cheshire. These were found at Hoylake by C. M. Jones in June and July 1954.

Ernarmonia funebrana Treits. Obviously overlooked in the damson growing area of Cheshire, a number of larvae were found in the fruits of damson and plum from Goostry and Mobberley in 1953.

Xenolechia alburnella Dup. I understand this species was first taken in England by Mr. A. Smith at York in the 1930's. Not recorded for Cheshire. Major A. W. Boyd and I found a specimen on a birch trunk at Hartford on 15.vii.53. We had almost left it as a pale *X. proximella* Hübn., when the white thorax caused us to pause and box it. On examining my series of *X. proximella*, I found two specimens of *X. alburnella* from Delamere, July 1936, and H. L. Burrows tells me he has taken similar specimens in July at Delamere. *X. alburnella* is not described in Meyrick's *Handbook*.

Gelechia rhombella Schiff. and *Blastodacna atra* Haw. (*vinolentella* Meyr.). These species have not been recorded for Lancashire since before 1890. Both have been taken near apple trees at Didsbury in July 1954. I am indebted to Mr. J. D. Bradley for identifying *B. atra*.

Phthorimaea tricolorella Haw. Bred from *Stellaria* at Ness, Wirral, B. B. Snell has rediscovered a species not recorded since before 1890.

Caloptilia betulicola Hering. New to the Cheshire list. In Sept. 1950, a species resembling *C. elongella* L. was bred from a cocoon on the underside of a birch leaf. In 1952-53, leaves of birch rolled by a species of *Caloptilia* were found at Delamere, Styal and Wilmslow and a dozen moths bred. Further observations suggest this moth is widespread and has been confused in the past with the common alder-feeding *C. elongella* L.

Argyresthia laevigatella H.-S. (*atmoriella* Bankes). Several specimens were taken at Delamere in 1954 by H. L. Burrows. The only previous record was one from the same district by Mr. Mansbridge.

Cedestis gysselinella Dup. New to the Cheshire list, several were taken from pine by H. L. Burrows in 1954, at Delamere.

Ypsolophus scabrella L. Mr. Burrows tells me he took a specimen near Wythenshawe Park, Northenden, several years ago. A second specimen was bred by C. M. Jones at Hoylake on 25.vii.54. I can find no published record for this species for Cheshire.

Is *Epicnaptera ilicifolia* Linn. Extinct?

By Philip Murray.

The Small Lappet does not seem to have been a particularly rare moth in the first half of the nineteenth century, but almost all the specimens in collections to-day, English ones I mean, came from the same place, namely Cannock Chase. Barrett records that in addition to this well-known locality *ilicifolia* was found, in mid-Victorian years, "on the moors near Sheffield and Ripon, Yorkshire", and that in 1864 a larva "*believed* to be of this species" (the italics are mine) was found "near Lynton, North Devon, but was not reared". Quite likely it was a Foxmoth larva, or perhaps *L. quercus* L. Our textbooks, with their usual disregard for historical accuracy, have garbled this into a definite assertion that the species was positively found "near Lynton". Buckler painted the larva's portrait, but no description of it by him was printed in the Ray Society's volumes of his work, nor are we told whence came the larva that he pictured.

At all events as soon as it became known locally that collectors were anxious to obtain it and were willing to pay a good price for the larvae, the brothers Bonney of Rugeley set about collecting them every year and sent them by post to their customers. Richard Weaver of Birmingham, among other 'outsiders', went to Cannock more or less regularly over a number of years and took the larvae on every occasion. Indeed so many persons took to wandering about the Chase for this purpose that in 1856 Weaver wrote to Stainton to say that the gamekeepers were chasing everybody away, "so I think the larvae will not be seen in Rugeley market". However, he managed to dodge the keepers and next year was able to write to Newman "On the 20th March I was delighted with the sight of a fine *ilicifolia* in my breeding cage, and since then I have had the good luck to rear eight more females and one male". Weaver does not mention the foodplant on which he reared his larvae in Birmingham; probably it was sallow—its foodplant on the Continent. Apparently the supply exceeded the demand, for Willy Machin (who certainly never had the means to buy insects) had larvae from the Bonney brothers and bred from them the eight specimens which his collection contained.

Cannock Chase *may* have been the eastern limit of *ilicifolia*'s range in this island, and when fires, gamekeepers, collectors, clearances, and building reduced that habitat and its population nobody troubled to look for the species elsewhere. And indeed to search for the larvae of *ilicifolia* in places where it is not known to exist would resemble the pastime of trying to find a needle in a haystack. But is it not possible that this species is present somewhere or other on the hundreds of square miles of bilberry-covered land from Shropshire to Cardigan, from Denbigh to Glamorgan? So far as I know, this immense territory, where perhaps *Vaccinium myrtillus* grows more profusely than anywhere else south of the Tweed, has never been subjected to the rays of the mercury vapour lamp. Knowing the hills of central Wales fairly well I can readily believe that it will be many years before this part of our island is completely explored entomologically.

To undertake the Herculean task of conveying a mercury vapour lamp and generator up on to the hills of central Wales on the chance of finding *ilicifolia* would probably be a waste of time and energy. Indeed I do not see how such a task could be achieved; for there are few roads across the hills, and the high plateaux are covered with tussocks of heather and fescue amid which the bilberry grows, so that progression is usually a matter of stepping from tussock to tussock—a well-nigh impossible task at night and not a little dangerous; for gullies are frequent.

Cannock Chase is not much more than 500 feet above sea-level, and the plateaux of mid-Wales are mostly three times as high. If *ilicifolia* is present in central Wales it should not be too difficult to find it by working from the roads on the lower ground—in the valleys in fact. There are several small towns—Clun, Bishop's Castle, Knighton, Montgomery, Llanwyrtyd Wells, Builth Wells, New Radnor—whence the roads that wind among bilberry-covered hills are mostly less than 700 feet above sea-level, and in these towns good lodgings are usually to be had. A car with m.v. lamp and generator could cover the ground for five or six miles in all directions from any one of these places, and the lamp could be worked comfortably on the roadside. The alders by the Wye northwards of Rhayader are sometimes tenanted by *H. bicuspis* and probably the m.v. lamp would discover other 'desirables' there—perhaps *G. furcifera* (*conformis*), which used to be taken lower down the river.—But *that* is a matter of moth-hunting in October or sallowing in April, which are usually too early and too late for most of us. Anyhow, until central Wales has been thoroughly worked with the m.v. lamp I suggest that the presence of *E. ilicifolia* in this part of our island is still an open question.

October Sugaring

By H. Symes.

Sugaring in recent years has entailed so many disappointments—especially, I believe, in the New Forest—that one had begun to wonder whether attendance at sugar parties had gone out of fashion among modern generations of moths. It was, therefore, with feelings of surprise and delight that on several evenings in mid-October I was enabled, by the kindness of Dr. H. King and Mr. A. C. R. Redgrave, to see moths coming in their dozens to sugar patches, and showing a marked preference for slightly alcoholic liquid refreshment over the more garish but less satisfying attractions of an m.v. lamp. On one of these nights, less than a dozen moths came to light, but at least 178 came to sugar. It was twenty-five years since I had seen such a sight. Then, in July 1939, I had a few wonderful nights in the woods near Oxford, where, among a host of commoner species, numbers of *Dicycla oo* L. and *Catocala promissa* Schiff. visited the sugar patches. On my last round that year, I actually left fourteen *promissa* on the tree trunks.

The sugaring round consisted of about forty posts and a few trees along the side of a footpath that merged into a grassy lane. There had been a good deal of cow traffic along the route, and one had to tread warily in the darkness. At one point, the path crossed a backwater where lily pads floated on the sluggish stream. It was a place that would have delighted the heart of old Izaak Walton, for the main stream of the river was not far off, and one Sunday evening in the summer I saw three coach loads of anglers departing with looks of contentment on their faces.

Sugaring in October has the advantage of permitting one to return home at a reasonable hour, and this year many of the nights were milder than those in July and August. But one must be on the scene not much later than 5.30 p.m. to put on the sugar, for the moths begin to arrive about six o'clock, and the hour after that was the most profitable of the whole evening. On one occasion, when applying the treacle, we found a number of moths, mostly *Conistra vaccinii* L., already sitting on the posts, as though waiting for opening time, and directly I put the brush to one post, a moth hurried up to the fresh treacle and began to enjoy the feast. It was then that Mr. Redgrave netted a *Lithophane socia* Hufn. as it was flying around.

Interruptions there were, but not of a serious nature. As we arrived one Saturday, we flushed a courting couple, who moved away down the path in the failing light. There were generally a few boys on bicycles passing through, who showed some natural curiosity about our activities. With luck, the cows would be peacefully resting in a field, but they might be strung out along the path. As the darkness deepened, part of the sky grew bright with the reflection of the distant lights of Bournemouth. The silence was broken occasionally by the hooting and screeching of owls, the unmistakable call of a cock pheasant, and the rather comical cry of a dabchick. The surrounding fields contained some noble trees, mainly elms, with a few oaks and ashes, and there were maples, sallows, willows, hawthorns, blackthorns and brambles in the hedgerows. With all this variety of vegetation, it was not surprising that a good many species of moths were represented.

Just after six o'clock one evening, we started off on our first round, and found about ten moths already assembled on the first post. They were all *Agrochola circellaris* Hufn., but there would be a *Lithophane socia* waiting for us here when we returned at the end of the round. The next two posts had nothing on them but snails and earwigs: then we came to a tree trunk where a dozen moths were feasting. And so we went on, finding here and there an *Agrochola lota* Cl. or *A. macilenta* Hb., the latter hard to pick out by the light of an electric torch among a crowd of *A. circellaris* and *A. lychnidis* Schiff. There were also some larger moths, such as *Phlogophora meticulosa* L., *Griposia aprilina* L., *Eupsilia transversa* Hufn., in beautiful condition and showing a fine range of markings, and *Allophyes oxyacanthae* L., the shiest moth at sugar of them all. There was always the hope of seeing *Lithophane semibrunnea* Haw. or *L. socia,* and had not Dr. King taken *Leucania vitellina* Hb. on an otherwise poor night?

The total number of species seen was thirty-six. In addition to the twelve already mentioned, there were, in order approximately of abundance, *Dryobotodes protea* Schiff., *Hydraecia micacea* Esp., *Cirrhia* *icteritia* Hufn. (mostly worn specimens) and *Conistra ligula* Esp., the last species to put in an appearance. The remaining species were represented by only one or perhaps two specimens: they were *Graptolitha ornitopus* Hufn., *Omphaloscelis lunosa* Haw., *Agrotis segetum* Schiff., *Amathes c-nigrum* L., *Leucania pallens* L., *Plusia gamma* L., *Rhizedra lutosa* Hb., *Peridroma saucia* Hb., *Citria lutea* Strom., *Triphaena pronuba* L., *Diarsia rubi* View., *Apatele rumicis* L., *Aporophyla nigra* Haw., *Agrotis ypsilon* Rott., *Amphipyra pyramidea* L., *Ochropleura plecta* L., *Catocala nupta* L., *Hypena proboscidalis* L. and *H. rostralis* L., and one Geometer, *Dysstroma citrata* L.

Collecting Tenebrionid Beetles with Poisoned Bait

By H. Bytinski-Salz, Ph.D., F.R.E.S.

When compiling a faunistic survey, it is not always possible to be at the right spot in the right season, when the insects may be most easily collected. For the Tenebrionids, this season is of course the late winter and early spring, when the beetles may be found either on the surface or hiding under stones, but with the advancement of the dry season they hide during the day deeply in cracks of the soil or in holes; only during the night they come to the surface for feeding. Many species, especially the larger ones, continue to live for several years, but those with a shorter life span live as adults from summer to next spring. That means, in summer and autumn they are there—but usually you don't find them during daytime, and turning stones is of no avail as the surface of the soil is too hot and dry. If you like digging half a yard or a yard you may extract some, but this is slave work in the hot sun.

A much easier method is to poison them with bait and then collect them next day or the day after it, when they have been unable to retire to their subterranean quarters. Though I haven't been able to find by this way any species new to Israel, I nevertheless was able to increase the number of specimens of species so far considered rare and to obtain a number of surprising records for species previously thought to occur in restricted areas only.

The first observations were made in autumn 1948 in two abandoned Arab villages near Rehobot during the course of experiments to develop a poison bait to destroy the Oriental hornet (*Vespa orientalis* F.) (see: Rivnay, I., and Bytinski-Salz, H., *Agr. Res. Station Rehobot Bull.*, 52). Dozens of nests were in the walls of houses and courtyards built of loam bricks, and the poison baits were placed on the walls about 1/2 to 1 yard from the entrance of the nest. The bait consisted of raw minced meat and talcum powder, to which were added several poisons as thallium sulphate, sodium arsenite, B.H.C., and others. The bait was readily accepted by the hornets, which also fed it to their larvae and in this way it was possible to exterminate the whole nest in a relatively short time. This method is now in general use in this country to combat the very serious attacks of hornets on apiaries and in vineyards.

Some of the bait always dropped to the ground and during the night was eaten by beetles foraging in the abandoned streets. Next morning or the day after, many poisoned beetles were found at the foot of the walls, unable to walk in their normal fashion or lying on their backs.

Of course the number of species of Tenebrionids in such a village is very restricted, but it was unexpected that not a single *Blaps* was found. The most common species were *Tentyria discicollis* Rche., *Scaurus puncticollis* Sol. ssp. *rugicollis* Rche., *Ocnera hispida* Forsk. ssp. *latreillei* Sol., and *Pimelia mittrei* Sol., but also a few *Erodius dejeani* Sol. v. *lineolatus* Rtt. Of more interest were a great number of *Akis latreillei* Sol., of which I had found before only single specimens, and *Gedeon arabicus* Sol. (syn. *hierichonticus* Rche.) which has been known so far only from the lower Jordan valley and the Judean desert.

A second series of observations were made in the Southern steppe (Negev) south of the line Gaza-Beersheba during the locust campaigns in May-June 1953 and May 1954. As is well known the hopper bands are to-day destroyed by a dry bait consisting of wheat bran and 2% B.H.C. (Benzene hexachloride). During the night many beetles, especially Tenebrionids, are seen feeding on the remains of the bait or on dead locusts and 1-2 days afterwards they can be collected easily. But there are competitors in the shape of ants, especially the carnivorous black *Cataglyphis bicolor* ssp. *nodus* and the large brown carpenter ant *Camponotus compressus* ssp. *fellah* which quickly cut up the beetles and carry them to their nests. This may account for the relatively small number of Tenebrionids of smaller size as *Arthodeis*, *Amnodeis*, *Erodius*, *Zophosis*, etc., found on the surface and the mutilation of larger specimens which often have their antennae and tarsi cut off.

On suitable places enormous numbers of Tenebrionids may inhabit the soil as can be judged by the large number of holes especially on the slopes of wadis. In one case the wind had driven poisened bran on one side of the wadi and there, in a narrow band 1-2 yards wide, on each square yard, 3-10 beetles, of which about 90% were *Blaps sulcata* Cast., could be found along a stretch of several hundreds of yards. On plain loess soil the density is much smaller of course, I would say in the average of about 3-5 per 100 square yards.

Of course, the majority of species found are those which are quite common all over the steppe in spring: *Zophosis punctata*-group, *Z. pharaonis* Rtt., *Z. complanata* Sol., *Erodius puncticollis* Sol. ssp. *ecostatus* Crotch, *E. cyrenaicus* Schust. ssp., *Amnodeis gebieni* Rtt., *Mesostena angustata* F., *Tentyria orbiculata* F. ssp. *subsulcata* Rche., *T. herculeana* Rche., *T. discicollis* Rche., *Oxycara breviuscula* Fairm., *Adesmia syriaca* Bdi., *A. dilatata* Klg. ssp. *drakei* Crotch, *Sepidium korah* Rtt., *Akis elevata* Sol., *Scaurus puncticollis* Sol. ssp. *rugicollis* Rche., *Ocnera hispida* Forsk., *O. philistina* Rche., *Pimelia angulata* F. ssp. *sinaitica* Schatzm. Koch, *P. mittrei* Sol., *P. bajula* Klg., *P. derasa* Klg. ssp. *derasoides* Schust., *P. canescens* Klg., *P. orientalis* Sen., *Blaps wiedemanni* Sol., *P. polychresta* Forsk., *B. sulcata* Cast., *Anemia sardoa* Gené, *Mesomorphus longulus* Rche., *Gonocephalum rusticum* Ol., *Opatroides punctulatus* Brllé., *Crypticus maculosus* Fairm., *Alphitobius diaperinus* Panz., etc.

But to this list must be added a number of species most of them new to Israel though known from the Sinai and Egypt and which so far belonged to the rarities of the zone: *Arthodeis gebieni* Rtt., *Trichosphaena perraudieri* Mars., *Hionthis heydeni* Rtt., *Micipsa batesi* Haag, *Prionotheca coronata* Ol. ssp. *freyi* By.S., *Doderoella interpunctata* Klg. ssp. *cyrenaica* Schust., and *Pterolasia squalida* Sol.

It was my intention to recommend the use of poisoned bran bait (which poison is pretty unimportant) for collecting Tenebrionids during the dry season and I especially advise it to Anti-Locust officers which have the opportunity to visit places of difficult access in the Arabian peninsula, Iran and Baluchistan, from where very little is known about the entomofauna at all.

Tel Aviv., Israel. 1.x.54.

An Entomologist in Argentina

XI. Bahia Blanca and the Rio Negro Valley

(*Continued from Vol. 66, page 293*)

By Kenneth J. Hayward, D.Sc. (Hon.), F.R.E.S.

A curiosity of Río Colorado was that although the town lay entirely in the national territory of the Río Negro, its church was in the neighbouring territory of La Pampa (now the province of Eva Perón) as it had been built just across the river which passes a few hundred yards to the north and separates these two territories. Here the land sloped steeply upwards to a flat plateau on which there was nothing but a very sparse growth of *jarilla* but from which a fine view was obtainable of the valley. This high cliff-like bank was very much eroded and lightly covered with thorny scrub and on the first occasion that I visited it, led there in the hopes of finding at least a little shelter from the fierce gale then blowing, the air was laden with the almost overpowering perfume of the magnificent white flowers of an *Echinopsis* cactus (*melanoptamica*) which was growing everywhere in large clumps. To show how short is the flowering period of some of the cacti, when I returned four days later to take photographs of the blooms, I was not able to find a single plant in flower.

The great bugbear to collecting in this part of the world is the incessant wind. Not only has one to eat dust and grit continually but it is frequently quite out of the question to use any sort of net and I have broken a handle trying to do so. Often when one is in the act of stooping to pick up an exposed insect from the ground it will be blown away before it can be reached and any airborne specimens pass at such a speed that it is seldom that they can be netted. As the greater part of the ground is flat it is difficult to find any shelter and collecting must often be confined to rooting about amongst the low vegetation and clumps of grasses and searching under stones and debris. At Río Colorado it was sometimes quite windless when we started out in the morning and we would congratulate ourselves on at last having a calm day before us, but invariably the wind would rise and within the hour the dust would be flying.

After eight days of intensive collecting we found we were beginning to exhaust the possibilities of the area so we continued west to Choele Choel, another small town built right on the banks of the Río Negro which was here split into a number of channels, the islands so formed being devoted to agriculture, mainly fruit orchards. On its other three sides the town was closed in with the driest of deserts where even the *jarilla* found little to sustain it and where two hours' collecting produced only a few ants. We found the cultivated areas of little interest for our work but it will be long before we forget the huge bowls of cherries that adorned our table at mealtimes in the little hotel we patronised. The only place where insects were fairly plentiful was a stretch of weed-covered ground alongside the river which was subject to occasional flooding and therefore not used for agriculture, but even here the insects were of no great interest to us as they varied but little from those we had been catching at our previous stopping place. Many of the hedges along the riverside lanes were composed of tamarisk and although the flowering season had passed, we found here and there stray blooms and whenever we did we reaped a rich harvest of flies and small bees and wasps. On one such occasion I took more than three hundred in under half an hour by air-sweeping over a small bunch of recently opened and therefore very attractive blossom.

We spent four full days at Choele Choel before going on to Fuerte General Roca where we arrived late at night to find as I have already mentioned that our baggage had again continued on to Cipoletti, but we recovered it early next day. The first part of our journey to this considerable town lay across desert but after an hour or so we neared the river which was here wide and shallow, its placid waters reflecting the colours of the evening sky, whilst the eastern heavens were filled with great banks of cumulus lit up as darkness fell by flickering lightning. Here only the fences separated the desert from the sown; on one side there would be green lushness, on the other not reached by irrigation the soil would be bare and arid with not even a weed to enliven its drabness. Thus can water change a desert to a garden.

Of Fuerte General Roca we hold no pleasant memories. We woke to a howling gale that brought pedestrians to a halt as they reached street corners and heaped the wind-borne sand and grit in miniature dunes across the pavements. Sane collecting was out of the question and we spent the morning in a car exploring the outskirts of the town, only to find that it was for many miles surrounded by small enclosed properties so that we would have to go far afield to find open spaces or else content ourselves with roadside hunting. We gave Fuerte General Roca best and early the next morning continued on to Neuquén, capital of the national territory of that name, about an hour's journey that took us through the intensively cultivated Cipoletti area with its serried rows of poplars which form the windbreaks of the orchards that occupy every available foot of land.

The town of Neuquén which lies just inside the territory of that name is practically the end of what is generally known as the Río Negro Valley, and except for a small agricultural colony at Centenaria a few miles further west there is no cultivation to speak of. This ends at the Río Neuquén a few miles east of the town and here close to its junction with the Limay and the boundary between the territories of Río Negro and Neuquén. From now onwards until we reached the northern edge of the *Nothofagus* forests at San Martín de los Andes our collecting was to be confined to desert areas. Up to this point we had only taken fourteen thousand insects and of these nearly eleven thousand came from Río Colorado and Choele Choel, and surprising as it may seem, our collecting in the wilder areas ahead of us proved not only more profitable but I think in general the quality of the insects we found there was better and they were certainly far more interesting.

Something about the Mole-Cricket

By P. B. M. ALLAN.

When my friend Dr. Malcolm Burr asked me, only a few weeks before his death, if I would insert in the *Record* his query about *Gryllotalpa gryllotalpa* L., which was later printed in the July-August 1954 issue at page 203, I told him what I knew about this insect in England and said that I had neither read nor heard of one being caught or observed in this country for many years. It was not an uncommon insect in my boyhood and was still to be found in some places where, it is said, it no longer occurs. But is not this dearth of modern records due in the main to the decline in the number of field entomologists, especially orthopterists—of whom perhaps there are less than twenty in this country to-day—since 1914? And assuming that my estimate of twenty field orthopterists (not mere dilettanti but serious specialists) is not too optimistic, how many of these have made a systematic search, over several years, for *Gryllotalpa*, taking nightly walks in late May and June along the banks of streams and canals, bogs, and low-lying wet ground, to listen for the distinctive churring of this insect, or have visited such places with a petrol or mercury vapour lamp? Perhaps one could count these assiduous searchers on the fingers of one hand.

In the past, *Gryllotalpa* has been "written up" in English and Continental entomological literature more than any other individual insect, not excluding the Pussmoth. The reasons for this are probably: (1) To the general nature-lover or naturalist who is not greatly interested in insect morphology it is a fantastic animal, having a body like that of a cricket and "fore-paws" like those of a mole; (2) It is one of the larger insects, often spinning two inches in length, and therefore attracts attention whenever it is seen; (3) It is sometimes, on the Continent, a serious pest in kitchen-gardens: indeed an old German writer remarked "Happy are the places where this pest is unknown!" Its morphology, anatomy and habits have been dealt with *ad lib.* by the Continental writers, but not, so far as I am aware, during the last fifty years. Yet in spite of all this publicity *Gryllotalpa*, being nocturnal and subterranean, is very rarely seen unless fortuitously unearthed by a spade.

It has a considerable wing expanse, 2¾ inches—there is a reproduction of an excellent photograph, by W. J. Lucas, of a *Gryllotalpa* with wings expanded in *Entomologist* for April 1912 (Vol. 45, Plate IV, facing page 117)—and it has a considerable power of flight, *teste* Gilbert White (*Nat. Hist. Selborne*, Letter 90)—"make long excursions" are his words. Yet although I have been interested in the mole-cricket ever since I was shown a colony and kept some as pets at the end of last century I have never seen, nor have I ever met nor even heard of anyone who has seen, a mole-cricket on the wing going about its lawful occasions. It may well come to the m.v. lamp, and perhaps some readers of the *Record* have already made its personal acquaintance by this means. If so, I hope they will tell us how, when, and where. According to Gilbert White its flight is undulating, the insect "rising and falling in curves".

In his paper in *Entomologist*, 45, 114-117, Lucas remarked (p. 115) that *Gryllotalpa* "appears to be seldom noticed in Britain, though it is possibly not so scarce as this would imply . . . . I know of but one locality where it is permanently established. At a spot in the neighbourhood of Ramnor, in the New Forest, one of the keepers seems at any time able to obtain specimens by digging for them in the clayey soil . . . . Perhaps other entomologists may know where this—one of the finest of British insects—has permanent colonies. Mr. J. G. Dalgleish is accustomed to receive living examples from Guernsey".

My colony was also in the New Forest, but some distance from Ramnor. During the closing years of last century and beginning of the present one I used to spend June and July in the neighbourhood of Bramshaw, and near this village there was (and doubtless still is) a small bog inhabited by *Gryllotalpa*. So far as I remember I was shown this habitat by the late Dr. W. M. Jeffreys of Canterton. How he discovered it I know not. It was one of those typical New Forest bogs which one skirted rather than crossed; for although a passage across some of them was possible if one jumped lightly from tussock to tussock, often the whole surface seemed like a carpet laid on a pond, undulating beneath one's weight, and it was plain that if the surface should break one would be in an awkward plight.

This bog near Bramshaw was well sprinkled with little hillocks, like conical molehills covered with turf, and these were just firm enough for a light-weight to stand on. They were also the 'warrens' of the mole-crickets, and if you stooped and dug the fingers of both hands well into the base of one of these hillocks and wrenched it up entire, you would find that the hillock was traversed by burrows large enough to admit a finger. How deep these burrows extended I never found; for the bog was some distance from my home and I had no fancy to carry a spade about with me when I went mole-cricketing.

The inhabitants of these burrows could be taken only in the late evening: presumably they slept deep down in the bowels of their warrens by day. But if you approached a hillock—as delicately as Agag, for the mole-cricket, like most other subterranean animals, is extremely sensitive to vibrations—at dusk, dug your fingers gently into its base, and tore it up with great suddenness, it was odds on that you would expose a *Gryllotalpa* or perhaps two, and if you were quick you could pick up the animal before it had time to find an entrance to its ruptured burrow.

I found a number of these insects in this way, both males and females, and kept them in a cage half filled with a hillock which I had carried home in a bucket; but not knowing then that they would eat sliced potato or carrot or turnip (and most probably parsnip) they did not thrive and eventually I turned them down in another bog nearer to my house. Not unnaturally (for I knew nothing of ecology in those days) they soon disappeared therefrom.

If I were younger I could go back to that bog in summer (if we ever had a summer) on an evening in late May or early June, with a camp-stool and a butterfly-net, and sit there at the edge of the bog, quietly smoking my pipe, until the churring of a mole-cricket told me that *Gryllotalpa* was astir. Then I should light a petrol lamp, and watch. It *might* be that I should see a mole-cricket on the wing after all these years . . . .

Burr's distribution map for the mole-cricket (*Brit. Grasshoppers and* *their Allies*, 1936, p. 111) shows its range in our islands to be patchy. It has been recorded from some fourteen English counties ranging from the south coast to Lancashire, though not from Somerset, Wiltshire nor Wales. But certainly *Gryllotalpa* used to occur in Caermarthenshire since Edward Lhwyd discovered it near Kidwelly "in the sea-lands that are covered every tide", found that the Welsh specimens did not differ from those he had taken in the Midlands, and mentioned that the Welsh name for the mole-cricket is *rhing y les.* It is not unlikely that it occurred at one time throughout the country and there are old records from Renfrewshire and Angus. In Ireland it is known from Co. Londonderry. On the Continent it appears to be widespread, though I know not how far north it ranges nor whether it is known in Spain. (Of course any Spanish book on insects would tell one this, but I have not got one in my bookcase.) It may be that if searched for systematically many more localities might be discovered; it seems strange that it is unknown from the banks of the Wiltshire Avon and I doubt if it really is. Imms's distribution map (*Insect Nat. Hist.*, 1947, p. 300) is similar to Burr's but omits Cambridgeshire and the Scottish localities.

Its usual haunts are the banks of streams and canals, and particularly gardens which are bounded by streams, for here it can feast upon the roots of cultivated vegetables and it is in such situations that its depredations are usually noticed on the Continent; but, as in the New Forest, it is also an inhabitant of bogs. It seems to have been common in Cambridgeshire years ago and perhaps still inhabits that county in spite of Imms's omission; for it occurred also in the Fenland, and Norfolk is included in the modern distribution maps. Those whose business it is to supply the zoological departments of our universities with arthropods for study report that *Gryllotalpa* is now hard to come by in England, and a year or two ago some specimens which I required came from Germany. Dr Burr's appeal for recent information about this fine insect in England is therefore timely.

The Mystery of the Golden Plusia

By An Old Moth-Hunter.

It started as far back as the 29th May 1903. I was pushing 3 ft. bamboos into a herbaceous border in order to give support, presently, to some Delphiniums, and inadvertently I turned over a new leaf. It was a new leaf in both senses, because underneath it was a fat green caterpillar which I did not immediately recognize. Looked at through my pocket lens I found that so far from being a *P. meticulosa* or some common hibernated Noctuid it was a typical *Plusia*. Not being at that time weaned of the habit of jumping to conclusions I at once informed my father, who was varnishing a trout rod in a sheltered corner nearby, that I had found a larva of "the new Plusia", as we then called *moneta*. Said he "Where there is one there are more", and went on with his job. We were both right: there were indeed more; there were small larvae, big larvae, and, beneath the lowest leaves, golden cocoons; and at their proper season *P. moneta* appeared on my setting-boards.

Since that far-off day I have often pondered upon this matter of *moneta*'s appearance in our gardens and I am as far, to-day, from solving the mystery of its annual occurrence as I have ever been. For although the mystery has been solved to everybody else's satisfaction it has never been solved to mine. Which is one of the drawbacks of being a heretic.

The moth is a colonist, so the books say. It is with us, nowadays, all the year round. There are two broods, the moths of the first brood being on the wing as early as May, those of the second as late as 4th October (*Entom.*, 1925, **58**: 265). The larvae arising from the autumn brood hibernate when very young and feed to maturity in the succeeding April-May. But *where do these larvae hibernate?*

In 1912 a discussion on this very point arose in the *Entomologist* (**45**: 181). It originated in a query by the Reverend W. Claxton, who wrote as follows:—"Is it known how *P. moneta* passes the winter? I am inclined to think that the egg is laid on the seed of the plant while in the pod. For this reason: last autumn I bought some new flower-pots from a brick-yard, not from a nurseryman, one of which I filled with earth from a meadow far from any possible *Delphinium* or monkshood, and in it planted some seeds of *Delphinium* bought from a seedsman. This pot was kept in a greenhouse through the winter, in which there were not and had not been any other *Delphinium* plants. When my seedlings were about an inch and a half high, there, curled up among them, was a small *P. moneta* larva. How did it get there? The only possible way seems to be that it was among the seed, either as ovum or larva, and all things considered it does not seem feasible that it could have survived if it was in the larval stage. Hence I conclude that the egg is attached to a seed and so passes the winter."

This query brought forth a reply from Mr. C. Nicholson (*ib.*, p. 206) After expressing the opinion that the imagines of the second brood "*probably* oviposit on the seed-capsules *or* on late flowers, *if any*" (the italics are mine), he went on to assert categorically that "The larvae hibernate in the hollow stems of the plants near the surface of the ground, and if these be removed in winter I presume no larvae would appear in spring . . . I should *think* it highly probable that the young larvae would sometimes hybernate in the dead capsules, or even inside some of the seeds, and that Mr. Claxton's larva was curled up inside a seed . . ."

This letter seems to me to be noteworthy chiefly on account of its airy inconsequence. There is no mention of any personal observation nor of any authority for the statement that the larvae hibernate "in the hollow stems"; it is just a bland assertion of something which its writer feels sure must be the case. I quote it only in order to pass by on the other side.

This letter was followed by one from Percy C. Reid (*ib.*, p. 206), who recorded watching a female imago ovipositing:—"She laid her egg on the unexpanded bud of a *Delphinium* flower. I have no doubt that, like most Plusias, *P. moneta* passes the winter in the larval stage . . ."

Dr. K. G. Blair then recorded (*ibidem*) his experiences, which largely coincide with my own. "Mr. Claxton's theory . . . that *P. moneta* lays its eggs on the seeds of *Delphinium* while yet in the pod is extremely interesting, but all the evidence at my disposal, though not conclusive, is against it. In my garden there is a single clump of monkshood (*Aconitum*), which comes up regularly year after year, and in due course flowers, but to the best of my belief in the last twenty years, and certainly in the last ten, it has never succeeded in setting any seed, even in spite of attempts at artificial self-pollination. Nevertheless, from 1904 to 1907 the young larvae of *P. moneta* appeared in the tips as soon as the shoots were an inch or two above ground. The eggs that produced these could not have been laid on the seeds of the plant, for there were no seeds, and no other plants of either *Aconitum* or *Delphinium* in any of the neighbouring gardens. *The old stems were cut off and the ground dug over, even the tubers removed in the autumn of the previous year;* consequently, if the eggs are laid in the autumn, they must have been deposited in the ground about the roots of the plant, so that in the spring the newly hatched larvae could find the springing shoots of the monkshood; or else, being laid on the plants, the eggs hatch in the autumn, and the young larvae crawl down and hybernate in the crevices of the tubers. This, I admit, was my own theory, but it seems to be ruled out of court by Mr. Claxton's experiments. There yet remains the possibility that the moth hybernates, and deposits its eggs on the young shoots as soon as they appear. This theory seems perhaps the least incompatible with both Mr. Claxton's experience and my own, though I have no positive evidence that the moth does hybernate.'' (All the italics in this paragraph are mine).

Three years later the *Entomologist* printed (1915, **48**: 286) another letter from Percy C. Reid, which carried the matter further. ''As *P. moneta* was common in my garden this summer,'' he wrote, ''I spent some time in watching the process of ovipositing, and found the egg was generally laid on the corolla of the flower but sometimes on a leaf. I also captured a few females and enclosed them in muslin bags on the flower-heads. A number of ova were laid, some on the flowers and some on the muslin. These hatched in about a fortnight, and the young larvae at once ate their way into the young seed-pods, the only visible mark of entry being a tiny hole, or rather spot, about the size of a pin's point. Determined to see whether it was possible for the larvae to hibernate on the seeds alone, I have since then kept the muslin bags *in situ* on the flower and seed-heads, and on examining them to-day (15th November 1915) I find several of the larvae still there and quite healthy and strong. It is evident, therefore, that the larvae can *and do sometimes* hibernate in the seeds, and clearly Mr. Claxton's larva came to him among the seeds which he purchased. But *I feel equally sure* that what usually happens is that the larvae *leave* the seed-pods, *or get thrown out of them when the ripe seed is discharged*, and that they then *enter the ground or the root crowns of the plants*, and there hibernate . . .'' Again the italics are mine.

And, believe it or not, in spite of all the speculation, assumption, supposition, and dubiety, that paragraph, penned nearly thirty-nine years ago, constitutes the last word on the hibernation of *Polychrisia moneta* Fab. which has appeared in the pages of our senior entomological magazine. There are times when the student of Entomology, turning to his library for an accurate, scientific, account of the bionomics of a common, widespread, British moth experiences that disappointment which once provoked Tutt to remark ''that this is so is simply a disgrace to our English collectors''. Read that last sentence of Mr. Percy Reid again and see if you can construct from it an exact account of the larval habits of *P. moneta*. Do you know, after reading it, whether the larva hibernates inside a seed and gets thrown some distance from the foodplant when the ripe seeds are ejected, then emerges from the seed and crawls back to the foodplant (presumably guided chemotropically); or whether it leaves the seed (? after eating the inside of it) before the pod bursts and climbs down the stem (inside or outside it?)—perhaps a distance of four feet—and, arriving at the base "enters the ground"; or whether, on reaching the base of the stem it burrows into "the root crown of the plant"? It seems to me that any man trying to make sense of all this will be like the man in the Bible whose last state was worse than the first.

One thing at least is certain—that all these suppositions, assumptions and speculations have not helped to solve the problem of the hibernation of *Polychrisia moneta*; and the problem is not likely to be solved until some observant entomologist searches for and finds a hibernating larva in December or January and provides us with enlarged photographs of it inside its hibernaculum.

If you, reader, are one of those who hold to the theory that the larva hibernates inside the old hollow stem of the foodplant I will ask you to solve another difficulty for me. Many years ago, when like many other garden-lovers I had the Delphinium craze, my gardener used to cut off the dead stems, in late October or early November according to the season, about six inches above the ground. The hollow stumps filled with rainwater at the first shower and they soon rotted to a pulpy mess. I feel sure that any small larva hibernating therein would have found them, in the words of Mr. Mantalini, "demd, damp, moist, unpleasant" places. But that is not the worst. Presently, when these stumps had rotted, my gardener forked the earth all about the plants, then covered them thickly with well-rotted horse manure—for the successful growing of fine Delphiniums depends on rich feeding. All winter long the plants were completely covered by a layer of earth and 'muck'. In Spring the plants pushed up their sturdy shoots through this dressing—and in April the larvae of *P. moneta*, some of them apparently in their second instar, appeared in the tips of the shoots. *Where did these larvae pass the winter?* At that time I was continually replacing my plants by new varieties ordered at the Chelsea Show, and on these occasions I always searched the roots, as received from the nurseryman, for larvae—without success. I have searched, in October, scores of roots which the following Spring gave rise to plants harbouring *moneta*.

But I was younger then both in years and Entomology, and if—I repeat *if*, I stress *if*—the first instar larva of this moth does actually gnaw a tiny hole in the crown of its foodplant's root, ensconces itself therein, and seals the orifice with silk, I think it is highly probable that I should not have spotted such a hibernaculum; for presumably the silk would be the same colour as the root. This is pure speculation and is therefore of no more value than the surmises of those other, and more erudite, observers whom I have already quoted. I set it down here only as a possible line of research for some younger man who has a keenness of vision and a steadiness of hand which I no longer possess.

I am inclined to rule out the supposition that the first instar larvae remain inside the seeds and are ejected when the seed-pods burst; to negotiate the rough clods covered with slimy 'muck' surrounding my plants would not be feasible for a tiny larva for hydrodynamic reasons. Nor do I favour an assumption that the imago hibernates and oviposits in March on plants perhaps only three or four inches high. I have seen no mention in our literature of the imago being captured or observed in England before May.

The plan most likely to yield results would be to plant a clump of four or five three-year-old Delphiniums, the roots some eighteen inches apart, in a garden where *P. moneta* occurred regularly every year. If larvae were noticed on the flower-spikes the following spring, well and good: they should be left alone. In December the roots of all the plants should be dug up, washed very carefully, and the crowns of the roots scrutinised, as well as the adjacent areas. If no signs of hibernating larvae could be found I should be inclined to pare the crowns even as a cook pares one's potatoes for lunch, but of course much more slowly and carefully. The bases of the remains of the flower-stalks should also be most carefully examined; for the possibility that the larva gnaws a recess in the pith and seals himself up there should not be overlooked. If the crown of the root is the chosen site most likely the larva would be found close against the bud of a next year's flower-stem.

Meanwhile will someone please obtain eggs of *P. moneta*, then follow the emergent larvae into the seed-pod and tell us, in due course, if the first instar larva feeds upon the contents of the unripe seeds, where it rests between meals, and whether (having eaten out a sufficiency) it ensconces itself inside the ripening seed? Having made these observations the exciting part of the detection follows—the pursuit of the larva into its hibernaculum.

Good luck to you. I await the result of your investigations with the most breathless interest.

Current Notes

Under the heading "A Rare Butterfly" a provincial newspaper recently announced the capture by "a schoolboy living in St. Albans" of a specimen of the Mazarine Blue. No details of the 'capture' were given—the schoolboy "unfortunately did not leave his name and address"—and perhaps no consequence need be attached to the matter. It may have been a Continental specimen 'blown over' or it may have been an unlabelled British specimen caught many years ago. It may even have been *Cupido minimus* Rott. So far as we have been able to discover, *Cyaniris semiargus* Rott. has been extinct in this country for nearly eighty years. It is not a known migrant and the last authentic example of the indigenous race taken in England was caught by Evan John of Llantrissent at Dursley, Gloucestershire, in June 1865. In South Wales *semiargus* lingered on until 1877, six specimens taken near Cardiff in that year being exhibited by William Prest of York in 1878.

From time to time wishful thinking has prompted rumours that the Mazarine Blue is still with us; but since the species was indubitably an inhabitant of this island years ago and doubtless was exterminated by the same natural phenomenon as deprived us also of *Aporia crataegi, Lycaena dispar, Lymantria dispar, Laelia caenosa, Coscinia striata, Caenophila subrosea, Euphyia polygrammata, Trachea atriplicis, Apatele strigosa* and other species which dwindled to extinction in the nineteenth century, it is unlikely that any specimens of the autochthonous race of *semiargus* still exist in Britain. Yet *semiargus* is in a somewhat different category from these other lost species. It was always exceedingly—one might even say excessively—local, sometimes occurring only in a field "of not more than an acre in extent" (to quote an observer writing in 1833), and its populations in each colony were incredibly small: no one ever caught or saw more than five or six specimens in the same place at the same time.

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*These Notes are, as previously, by the Assistant Editor.

There were two distinct races of *C. semiargus* in this island: an upland one, which inhabited the higher ground (limestone) at 400 feet and more above sea-level, and a lowland one, occurring from sea-level to at most 100 feet (loam). The lowland race spread into England across Dogger Land from Northern Europe, the upland one by way of Channel Land from France, and their comings were separated by some thousands of years. The upland race inhabited the higher ground west of Longitude 1° 40′ West; the lowland one occurred only from the Humber to the borders of Essex and Cambridgeshire and it did not range west of Longitude 1° 40′ East. 'Wanderers', all single specimens, were recorded from time to time from a very few midland counties; but no colony of *semiargus* was ever known to exist between the longitudes mentioned and, as Tutt warned, even these wanderers "must be accepted with caution". So far as our researches have gone at present it seems likely that a colony in the Avon valley near Ringwood survived the last glaciation in that sheltered spot and remained in the vicinity until the early decades of the nineteenth century.

To search for *C. semiargus* in its old haunts would, of course, nowadays be a waste of time; but there *is* one place which, to the best of our knowledge, has not yet been searched for this insect—the southern foothills of the mountain ranges nearest the sea in the counties of Waterford and Cork. For our part we believe that the Cardiff area was the extreme western limit of the English upland race's range; but it is just possible that when our islands were part of the mainland of Europe *semiargus* might have spread to southern Ireland. A long summer afternoon nearly fifty years ago on the uplands between Queenstown (or Cobh as we must now call that lovely spot) and Kinsale is still vivid in our memory—rough flowery grassland such as was favoured by the Mazarine Blue . . . . It is just possible—but only just.

Whilst motoring in the Fenland between 23rd and 30th June last year we paid a visit (on the 24th) to Warboys Wood, Huntingdonshire. The paucity of butterflies throughout the Fenland was remarkable, but one expected better things in this famous wood, so often accorded honourable mention by the early fathers of our craft. It was a sunny afternoon, yet the only butterflies seen were one *P. icarus*, one *P. aegeria*, one *P. brassicae*, three *P. napi*, and a faded moribund Green Hairstreak, just able to flutter, which settled on a trouser-leg for a moment or two. Unhappily this wood, which slopes down to the fen and was so rich in good things a hundred and fifty years ago, was destroyed some time after the first War. It does not now contain a single forest tree of twenty feet (except for a fringe of conifers on its western edge): it is just a neglected coppice and would no doubt have been bulldozed and ploughed long since but for the cost. No afforestation appears to have been attempted, and perhaps its only use to-day is as a fox-cover.

If there were more entomologists in England to-day we might yet be able to save some of our ancient woodlands. For *union fait la force*; and an efficient body—an 'Association for the Protection of Ancient Woodlands'—could do much by Press publicity and influence to spread the alarm whenever any part of our greater woodlands was threatened with destruction, whether by private persons or by government departments. Warboys Wood used to contain *A. iris*, *L. camilla*, most of the fritillaries, *S. pruni*, *T. betulae*, *C. palaemon*, *H. lucina* and wellnigh all the species which occur only at a fenland edge, such as *A. strigosa*, *T. atriplicis*, *A. fluxa* (*helmanni*), etc. It was a relict of the ancient forest of this island, perhaps six thousand and more years old. The destruction of Yardley Chase, another and much larger portion of our primeval forest, shows what can happen in this country without an effective voice being raised in opposition.

Cannock Chase has now been sprayed with insecticide by aeroplanes—'sprayplanes' as those responsible for this campaign enthusiastically call them. The insect to be destroyed was a Geometrid moth, *Bupalus piniaria* L., the larvae of which were alleged to be defoliating the Christmas trees planted by the Forestry Commission. As for the other species which feed only on conifers—why, we suppose they must be content to suffer extermination for the good of the cause. They are: *Hyloicus pinastri* L., *Panolis flammea* Schiff., *Thera obeliscata* Hb., *T. variata* Schiff., *T. firmata* Hb., *Eupithecia indigata* Hb., *E. lariciata* Frey., *E. tantillaria* Bdv., *E. pini* Retz., *Ellopia fasciaria* L., *Semiothisa liturata* Cl., and *Deileptenia ribeata* Cl.

We are wholly opposed to this mass "slaughter of the innocents" in order to control the temporary dominance of one species, which in all probability would have exhausted itself in a few seasons. So far we have not heard that the Pine Hawkmoth has spread to Staffordshire, but it is likely that the other eleven species are all to be found—or *were* to be found—in Cannock Chase. Surely this 'control' is forestry run mad. To destroy the tsetse fly, the locust, the gipsy moth, insects which spread disease or devour man's food or are a pest of continental dimensions, by the means made available by science is one thing; to eradicate a number of harmless, perhaps beneficial, species in a small area for the sake of restoring a balance which nature would have effected in a season or two is another matter altogether. No mention is made of any measures to prevent the spray from being wind-blown away from the conifers on to herbage and bushes outside the plantations. If this has occurred, the list of harmless and beneficial species, of many other Orders, destroyed will be an even longer one; for the spray may have been blown to a considerable distance.

Four new Nature Reserves have recently been created by the Nature Conservancy, three in England and one in Wales. The Welsh one, known as Cwm Idwal, is in the heart of Snowdonia National Park, about four miles north of Snowdon, and includes lake Idwal, which lies in the bowl of a natural amphitheatre 1,223 feet above sea-level. The surrounding land rises to 3,200 feet. The property is owned by the National Trust and comprises 984 acres. The interest of this Reserve is chiefly for botanists, some of the flora probably having survived the last Glaciation (the higher land being most likely nunataks) and including the

Green Spleenwort (*Asplenium viride* Huds.), *Lloydia* (*L. serotina* Reichenb.), *Lobelia dortmanna* L., and two of the quillworts (*Isoetes lacustris* L. and *I. echinospora* Dur.).

Blelham Bog, another of these reserves, is on the north-western edge of Blelham Tarn, 3½ miles S.W. of Ambleside, and is an example of the development of sphagnum bog from wet wild woodland. Very little of the original woodland now remains, though its presence below the surface peat has been demonstrated by bores. It is mainly a Sphagnum-Molinia-Myrica bog, containing *Drosera anglica* Huds., *Rhynchospora alba* Vahl, and *Carex filiformis* L. (*tomentosa*). The Trichopteron *Limnephilus xanthodes* McLachlan (known elsewhere from the Fens and Norfolk Broads) occurs in fair abundance.

Hartland Moor Nature Reserve, in Dorset, is close to the Conservancy's Research Station at Furzebrook, about a mile and a half south-west of Wareham. It covers 178 acres and is heathland, a stronghold of the Dorest Heath (*Erica ciliaris* L.), found elsewhere only in a few places in South Devon and Cornwall. There is a number of rare bog plants and local variations in the flora—these probably related to the differences in the drainage water. Arne Nature Reserve, also in Dorset, is a small section of a big wood, two and a half miles west of Wareham. It is one of the two known localities which exhibit the natural transition from dry woodland to salt marsh—a brackish tidal condition. It is probable that parts of this wood represent remains of the primitive broad-leaved forest. *Osmunda regalis* L. occurs and, on the seaward fringe of the Reserve, the useful mud-binder *Spartina townsendii* H. & J. Groves (cordgrass).

Last June the Nature Conservancy 'declared' a Nature Reserve at Bridgwater Bay, Somerset. Steart Island, in the Bay, was not declared as there was a tenancy in existence. This tenancy has now ended and the island brought into the Reserve. It lies off the mouth of the river Parret and until the end of the eighteenth century was part of the mainland. Now, at high tide there is half a mile of water between it and the mainland. The island itself is about half a mile long and a quarter of a mile wide, containing some 30 acres. It is the roosting place of hundreds of geese, chiefly White-fronted, and is the only known area in Britain where moulting shelduck gather each summer. For this reason it is hoped to keep the island entirely undisturbed.

At the Summer Meeting of the Royal Meteorological Society at Edinburgh last July Dr. F. L. Waterhouse had some interesting things to say about grass-eating larvae. Radiation of heat from the sun penetrates about half-way through the grass and the effect of wind somewhat further, wind speed being reduced to zero at about 40 cm. below the grass surface. A cool, humid layer was found next the ground (*e.g.* within the matted layer of dead grass in wild grassland). This was suitable for the resting stages of insects. For larvae, a more exhilarating climate was found half-way up the grass, where the most palatable grass could be found. Temperatures of 20° C. to 22° C. and humidity of 60 per cent were quite usual and not harmful to a larva; but high wind might seriously lower the body temperature. However, the larva could move up and down a few centimetres in the grass and so obtain a balance between conditions of wind and radiation, and so escape desiccation. Dr Sutton remarked that human beings might travel hundreds of miles to benefit from changes of climate of relatively comparable order.

Notwithstanding the jibes of "easy collecting" which one hears occasionally thrown at users of the m.v. lamp, entomologists of the "hardy Norseman" type are, happily, still with us. Writing about his successes among the moths of Fenland during the past season a correspondent remarks: "Personally I feel there was more than an element of luck in our captures. We set out to work the locality, unpromising though it looks, and work it we did regardless of what the weather was like. How many collectors, for instance, when the weather forecast was unfavourable would set out 35 miles in the rain and then stay until dawn? On our first night there in April the light-trap was covered with a rime of ice. We stayed and took the only specimen of . . . . Nothing outstanding certainly, but one more species to add to our list from this locality, which would otherwise have been overlooked".

At the time of his lamented death Dr. Malcolm Burr was writing his autobiography. Unhappily this was not sufficiently advanced for publication in book form, and by the kindness of Mrs. Burr, who has entrusted the MS. to our hands, we hope to print presently some of the very interesting accounts of collecting in out of the way parts of the world which it contains. We look forward also to printing some further accounts of Dr. Hayward's experiences in Argentina.

I have received so many letters asking me to carry on, all of them expressed in far more generous terms than I deserve, that I have found it impossible to adhere to my resolution to retire from the conduct of this magazine. I therefore decided last month that I would continue, as from January, to write for as well as manage it; and although I cannot hope to please all our readers all the time, I shall do my best, with your support, to keep *The Entomologist's Record* in the forefront of our British entomological magazines. Thank you one and all for your most heartening messages.—P. B. M. ALLAN.

Notes on Life-Histories

What is the significance of the "courtship flight" (as we lepidopterists usually, and probably erroneously, call it) of two butterflies, always of course a male and a female, which circle about each other, rising higher and higher in the sunshine, then at last, either separately or still together, flutter rapidly to the earth—and go their separate ways? Apparently it has nothing to do with mating—no pairing ever seems to result, for the butterflies invariably fly away from each other when they regain the herbage or trees. Nor is it the result of previous pairing, for we have seen it, often, occur with two butterflies coming from opposite directions.

In one of his papers Tutt described two *Colias hyale* performing this ritual, and though he inclined to think it was "somehow" a courting habit he noted that no pairing resulted. Here are his words (*Ent. Rec.*, **17**: 74): "When a male has succeeded in really attracting the attention of a ♀, he flies directly into the air, the ♀ following him, circling closely round and beating with her wings, often ascending high into the air and descending again, only to continue the chase by going up again, and, usually, finally separating and flying in different directions. I still think, somehow, it is a courting habit, yet I have never seen an actual pairing result therefrom, although I have seen the ♀ settle and the ♂ hover around her as if he intended pairing, both, however, finally flying away. It has been suggested that it is a repelling habit due to the ♀ having been already fertilised—a quite possible solution".

A year or two ago observation was kept almost daily for several weeks on a small lucerne field well populated by *Colias croceus*. The most notable thing about the mating of these *croceus* was that pairing usually took place very soon indeed after eclosion of the female, sometimes before the female's wings were dry, so that she could not fly at all. Yet this strange "courtship flight" was seen daily, perhaps several times, and certainly no pairing ever resulted from it. What was its purpose? It is not confined to any genus or subfamily and in the case of the 'skippers' it resembles a head-to-head ding-dong fight.

Shortly after Tutt's remarks appeared in print an interested reader recorded his own observations (*Ent. Rec.*, **17**: 108): "I notice our Editor alludes to the peculiar aerial flight of *Colias hyale* when (presumably) courting. Over and over again I have witnessed the same habit in the case of *Gonepteryx rhamni*, and with the same result, that is to say, with no result whatever. The insects, after a prolonged excursion upwards, return to Mother Earth, only to fly off in opposite directions, leaving the spectator in wonderment as to all this, apparently, useless fuss. Though I have no better solution to offer than the one suggested, I rather doubt its being correct. A butterfly's life is not so long, nor the hours of sunshine too numerous, that it can afford to waste much time in frivolous flirtations. The fluttering action of the ♀ (distinct from the flight of the ♂), under the circumstances, certainly gives one the impression that she is doing her utmost to attract the ♂. However, if the performance is a mere demonstration, it is singular that it should be of such constant occurrence, whereas the actual pairing is so seldom (at least in my case) observed . . . ."

Nobody else contributed a note on the subject, and there the matter was left. Certainly it is a recondite affair. If, as Tutt observed, it is the male which, in the first place, attracts the female, why should the female be attracted if she has already been fertilised? If she has *not* been fertilised, why does she respond to the male's advances and then refuse to pair? Moreover when sexual selections obtains with a species and a virgin butterfly (or moth) of that species rejects the advances of a certain male, that male does not accept her decision and go away without more ado: he keeps in the offing as long as she remains a virgin. That at least has been our own experience over many years. Can any of our readers suggest a reason for this recondite and apparently purposeless ritual?

Three years ago we asked, in *The Entomologist's Record,* for information about *Tholomiges* (*Schrankia*) *turfosalis* Wocke. No reply was forthcoming. The matter has been brought to the fore again by a paper by D. C. Ferguson in *The Canadian Entomologist* (86: 289—No. 7, 1954) wherein three new species of this genus, recently discovered in North America, are described and illustrated. All of them, as far as is known (there are now five species known to occur in North America) are restricted to the north-eastern region.

Ferguson discusses *turfosalis* briefly, remarking "I am omitting full treatment of the genotype, *Hypenodes turfosalis* Wocke, because of a scarcity of material for study. There is no way of being absolutely sure that only one species occurs in Europe, or that the specimens seen agree with the type of *turfosalis.* There are before me two European specimens, a male from Finland . . . and a female also from the Zeller collection but without locality label . . . I have examined only the female genitalia of *turfosalis,* and these are so close to the genitalia of the small bog species I am describing as to indicate a close relationship." In view of the wide distribution of *turfosalis* and the immense areas of the Palaearctic Region which offer habitats (acid bogs) and in which no evening collecting of small moths has yet been done, it may well be that other species of this genus still await discovery.

It is remarkable that nothing at all should be known of egg, larva, or pupa of any species in this genus, whether European, Asian, or North American. Most of them are inhabitants of sphagnum bogs, though one of the American species, *fractilinea,* has been taken in dry mixed or deciduous woodland as well as in a bog. They are all local insects and in Europe and Asia *turfosalis* has not been recorded south of Latitude 50°N. The vast marshes of Russia, swamps in Poland, North Germany, the Baltic countries, Finland (whence it ranges to Lapland), Denmark, Norway and Sweden are the homes of *turfosalis*; eastwards it extends through Siberia, and probably through Mongolia and Manchuria to the Pacific Ocean. Yet for all this wide distribution and the large populations of the species wherever it occurs, nobody appears ever to have described egg or larva or named the foodplant, and I know of no attempt to rear it.

In England *turfosalis* seems to be common enough, occurring from Dorset to Cumberland. In Ireland it has been known ever since Richard Weaver found it at Killarney in 1848, and Barrett gives "Perthshire" as a locality. In the sphagnum bogs of Norfolk it is abundant, as it probably still is in such of the North Country 'mosses' as have not yet been drained. Our ignorance of the early stages cannot therefore be assigned to any difficulty in obtaining material. Barrett attests that at dusk the moths fly "in numbers which are an actual revelation to the collector who has previously been, with trouble and disappointment, beating or trampling out odd specimens. Nothing is then more easy than to get a dozen into the net at one time".

But *turfosalis* is an exceedingly delicate insect and cannot live for long in a dry atmosphere. We have been told that it will not survive for an hour in a pill-box in a haversack. But if boxed in a 3-inch glazed larva-tin floored with damp newspaper and containing a 'salad' of plants from the habitat it should be possible to keep females alive long enough to obtain eggs. Is there no one among us who will observe the evening flight (from 7.30 p.m. to 9.0 p.m. S.T.), when sometimes "myriads" are on the wing, and watch carefully for assembling, pairing—and egg-laying? A really keen observer ought not to be defeated even by so tiny an insect.

P. B. M. A.

Notes and Observations

CACOECIA AERIFERANA H.-S. IN SUSSEX.—Mr. Wakely kindly pointed out to me recently that two Tortrices I took at m.v. light at Balcombe on 14.viii.54 were *C. aeriferana* H.-S., first recorded as British by Dr. Scott at Westwell, Kent, in 1951. Again in 1952 he reported its presence in his garden, and said it had not been seen outside that area. He suggested the insect might have been imported with the larches which formed a fifty-year-old plantation nearby. While there were a few larches about a hundred yards from my lamp there are quantities of big larches in the neighbourhood. Have there been any other records of this moth?—R. FAIRCLOUGH, Deanoak Lane, Leigh, Reigate, Surrey. 21.xi.54.

EUROIS OCCULTA L. IN SOMERSET.—It may be of interest to record that I took a single specimen of *Eurois occulta* Linn. in my m.v. trap on the night of 24th August. It was in fair condition and was the southern form.—G. H. W. CRUTTWELL, Old Ford House, Frome. 14.xii.54.

A REMARKABLE PAIRING OF PIERIS NAPI L.—I had an amazing experience at Royston on 27th August. My younger son had met me there to look over some *coridon*, but found very few bedraggled specimens. I saw *in cop.* what was apparently a pair of *P. napi*, of which I wanted one for its lovely light yellow underside; so I boxed both, and they remained coupled-up for an hour and a half until we got home. When they separated I put one—an obvious female—into a box, and put the yellow-undersided one into the killing bottle. Imagine my astonishment, when it relaxed and opened its wings, to see that it had complete *female* markings, but, I now think, a *male* abdomen. What have I got? A complete gynandromorph, or an extreme case of nymphomania?—S. H. KERSHAW, Alderman's Place, Aspley Heath, Bletchley, Bucks. 18.x.54.

PYRAUSTA NUBILALIS HUBN. IN SURREY AND BERKS.—I think an error of transcription has occurred in Mr. Fairclough's note concerning records of this species in Surrey (*Ent. Rec.*, **66**: 228). The Brockham specimen was in fact taken on 30.vii.1948, as subsequently recorded (*Entom.*, **82**: 138). I first noted *nubilalis* in my garden (two miles on the Berkshire side of the county boundary) on 18.vii.51; single specimens were also seen here in 1952 and 1953.—B. W. PARFITT, 4 Brind Park Terrace, Sandhurst, Surrey.

[We had already received a note from Mr. Fairclough giving the corrected date and asking us to insert an *erratum*.—ED.]

LATE APPEARANCE OF POLYGONIA C-ALBUM L.—Walking along the sunny and warm side of a road here on 3rd December a Comma (*P.*

c-album) was flying about and settling on the blossoms of some laurustinus (*Viburnum tinus*) bushes in a garden. Although not unduly surprised, the date is rather a peculiar one I think, even if it had been one of the commoner and more ubiquitous species, to be out of hibernation.—E. E. JOHNSON, Highfield House, Portsmouth Road, Guildford, Surrey. 6.xii.54.

A NOTE FROM TORQUAY.—A young Maidencombe collector, Mr. Roger Fisher, on what I believe was his first trial run of a recently acquired 'Robinson' trap had the good fortune to capture a specimen of *Hippotion celerio* L. The moth circled round the light at about 7.30 p.m. on 20th October and then pitched on a sheet hanging out on a line some distance away in the garden. Beginner's luck, indeed! The last time the species was taken in Devon was in 1885—so far as the printed record goes.

As far as this district is concerned 1954 has provided few records of the migrants, and, generally, has been a very disappointing season. When I found *Acherontia atropos* L. at rest just outside my trap at dawn on the morning of 4th September hopes of a good autumn to make amends for the summer's disappointments were revived, but I had to wait till the 29th before I saw a solitary *Macroglossum stellatarum* L. in the garden and it was not until 3rd October that *Leucania vitellina* Hb. put in its first appearance. Further specimens were taken on 6th and 23rd October, the last an unusually dark one.

For 19th October I am happy to record *Leucania loreyi* Dup. taken in my light trap, not such a fresh specimen as that taken here by me at sugar in August 1950, but quite reasonably perfect I'm glad to say. With this and my young friend's *H. celerio* I feel that Maidencombe may again hold up its head, bowed after such a succession of barren months whilst South-East England was recording so many wonderful captures, for Devonshire has certainly been very little in the picture of 1954 collecting.

I should like to put on record, however, my capture of *Evergestis extimalis* Scop. on 11th June, as this insect has not been previously recorded for South Devon I think, and *Eilema deplana* Esp., a rarity in Devon, on 28th August.

My activities have been restricted to moth trapping at my window as, since my illness which knocked me out for the whole of May, I've been going slow by doctor's orders. I'm glad to see that you are carrying on and I trust you will be able to continue your editorial work for a long time yet.—FRANK H. LEES, The Gables, Maidencombe, Torquay. 8.xi.54.

TWO ALIEN ORTHOPTEROID INSECTS FROM EDINBURGH.—The following exotic insects were sent in for identification to the East of Scotland College of Agriculture: (*a*) *Dorylaea rhombifolia* (Stoll) (Dictyoptera: Blattidae) and (*b*) *Tachycines asynamorus* Adelung (Orthoptera: Rhaphidophoridae). Both species are wingless and cosmopolitan. Both specimens were females.

D. rhombifolia is a widely distributed domiciliary cockroach in warmer parts of the world and it has several times been imported alive into the British Isles although it has never, so far as we are aware, become established. The specimen was taken in a packing-case from Hong-Kong on 22nd July, 1954.

T. asynamorus is an East Asiatic species of cave-inhabiting (?) camel-cricket which has been introduced into heated glasshouses in many parts of the world where it is sometimes reported as doing minor injury to tender vegetation. It has been recorded as established in several parts of the country—E. Sussex, Surrey, the London area, S. Essex, E. and W. Suffolk, N. Somerset, Glamorgan, Leicestershire* and Cheshire, and from Scotland in Lanarkshire (C. T. MacIntosh, 1951, *Ent. Rec.* **63**: 191-2)—but, so far, does not seem to have been reported for the east of Scotland.

The specimen was taken under a box in a garden on 10th September, 1954, and subsequent enquiry has indicated that it is almost certain that it must have originated either directly or indirectly from the heated glasshouses of the Edinburgh City Parks Department, some two hundred yards away on the Portobello Road, where, according to the manager, a Mr. Lawson, they have been present for over twenty years (that is, since before he joined the department). On investigation it was found that large numbers of camel-crickets were present in the channels containing the heating pipes under the central passages. It seems probable that the species was imported with exotic plants many years ago by Messrs. Dobbie & Co., to whom the houses originally belonged.

It may also be interesting to note that in the west of Scotland, a specimen of *T. asynamorus* was recently caught by Mr. I. Jack in a dwelling-house at Annfield Farm, Maybole Road, Ayr. Pot plants, although present in the house, had not been introduced for over two years, but a glasshouse belonging to the adjacent Belmont Nurseries (where various potted plants, tomatoes and chrysanthemums are grown) is within ten feet of Annfield Farm. The evidence from these two records seems to indicate that it may be possible for this insect to exist out of doors long enough (in the summer and early autumn) to invade new territory unaided. Midlothian (v.c. 83) and Ayrshire (v.c. 75) may thus both be added to the known British distribution of *Tachycines*.—E. DUNN, East of Scotland College of Agriculture, 13 George Square, Edinburgh, 8, and D. K. McE. KEVAN, University of Nottingham School of Agriculture, Sutton Bonington, Loughborough.

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*The most recently published records of this species are those of I. Thomas (1954 (ed.), *Min. Agric. Fish. Tech. Bul.*, **5**: 83, 87) who mentions it from a bulb forcing house in Middlesex and from a glasshouse in Leicester (v.c. 55); the latter is a new vice-comital record.

THE MAZARINE BLUE.—The Oxford English Dictionary assigns to the year 1686 the first mention, in English, of the word 'mazarine' as denoting "a deep rich blue"; but no etymology is suggested, though there seems to be an *arrière pensée* that it had to do with the great Cardinal who died in 1661 O.S. Can any of our readers well versed in French memoirs and social history of the seventeenth century tell me if the Cardinal favoured a blue cloak of *semiargus* hue?—P. B. M. ALLAN.

The Natural History Section of the Wiltshire Archaeological and Natural History Society is contemplating the preparation for publication of a list of the Macro-lepidoptera found in Wiltshire. This is a work which, as far as is known, has not previously been attempted. Collaborating with me are the well-known lepidopterists Captain R. A. Jackson, C.B.E., R.N., F.R.E.S., and Mr. C. M. R. Pitman. In order to avoid omissions and to make the list as complete and reliable as possible, the interest and co-operation of your readers is solicited.

The number of entomologists resident in Wiltshire is not large as compared with other counties, but it is well known that many lepidopterists from all over the country visit us from time to time in search of such things as *O. musculosa* and *L. coridon*, not to mention others. No doubt many interesting records are noted during these expeditions and we should be particularly glad of any information about the occurrence in Wiltshire of any of the less common species.

In addition, it might be possible to include the Pyrales. This would be highly desirable in view of the disgraceful blank showing for Wiltshire on the distribution map in Beirne's recent book *British Pyrales and Plume Moths.* A fair number—upwards of eighty—of this rather neglected group are already in our records, but it is felt that many more have been overlooked, and information on the whole family will be welcomed.

Will any one possessing such information please look into the matter during the long winter evenings and be good enough to send me a card? I will then furnish a list of the species about which we particularly want to know.—B. W. WEDDELL, 13 The Halve, Trowbridge, Wilts.

LEPIDOPTERA OF SOMERSET.—It is hoped to publish shortly a revised County List. Any records, with full data, would be welcome, especially records of Micro-lepidoptera.—A. H. TURNER, Recorder, Forest Drove, Bickenhall, Taunton.

Fifty Years Ago

(From *The Entomologist's Record* of 1905)

BREEDING HYBERNIA DEFOLIARIA.—I should like to know what treatment has proved successful in breeding *Hybernia defoliaria.* I ask because I am always unsuccessful with it; I do not get 5 per cent. of moths from my larvae, and I collect every year a good many. I give plenty of depth of soil, have varied it by keeping it moist, and sometimes dry, but always with the same result. I do not appear to get ichneumons, so conclude I never get the larvae to pupate, although I have seen fullfed larvae entering the soil. The moth was in great variety early in November, where I collect most of my larvae.—S. WALKER.

WINTER BROOD OF CIDARIA RUSSATA.—During November and December (1904) I reared a small brood (about a dozen examples) of *Cidaria russata*, the larvae of which I induced to feed up by giving them young strawberry leaves. For the three or four preceding years I have tried them on whitethorn, sleeving them out all the winter; but they have all disappeared by spring, so I suppose the earwigs have got them.

Those bred are all very black, but not much darker than the mother.—R. B. ROBERTSON.

EGG-LAYING OF NEMEOBIUS LUCINA.—*Nemeobius lucina* is said by most authorities to deposit its ova on both the upper- and under-sides of cowslip and primrose. I, each year, obtain by searching, numbers of its eggs, and during my collecting existence must have found several thousands, yet, although cowslip grows side by side and is practically as common as primrose in its localities, I have never yet seen a single egg on *Primula veris*, although I regularly look for it, and up to now have not seen one on the upperside of a leaf.—H. WOOD.

A FLIGHT OF BEETLES.—In July last, when I was staying with Mr. E A. Waterhouse, near Sandwich, we noted that evening flight of *Rhizotrogus solstitialis* L. Towards dusk, along about two miles of road, they were in countless thousands, flying over the top of a small fir wood, over a cornfield, and round the telegraph poles and wires; they also flew against, and settled on, us. On our way home we saw a single large bat flying in the direction from whence we had come. The next night we went to see if the same thing occurred again, and found hundreds of these big bats chasing and catching the beetles in the air though they often missed them. A hedgehog, too, was picking up those that fell to the ground. On the third night there was not a single beetle to be seen.—HORACE DONISTHORPE.

LOCUST IN SURREY.—I think you will be interested in hearing that a fine ♂ specimen of *Acridium aegyptium* has been brought to me this evening, and I have it alive in my study at the present moment. It was found in a cauliflower, that had been imported from the south of France, by a Godalming greengrocer. The shop people were alarmed, and called in the assistance of a cattle-drover. I suppose they thought he was accustomed to handling fierce beasts; but he, fortunately, took care of it and brought it to me. I see that it has not been often recorded, and so send you news of this specimen.—O. H. LATTER, Charterhouse.

Current Literature

PHYSIOLOGY OF INSECT METAMORPHOSIS by V. B. Wigglesworth, pp. viii + 152, 4 plates and 45 text-figures. Cambridge University Press, Price 12s 6d.

Of the hundreds of people who breed lepidoptera in this country there must be many who have paused to wonder at the apparent mystery of the transformations which take place from ovum to imago. This monograph by Prof. Wigglesworth will answer their problems so far as they are known to date. This work is the first of a series entitled 'Cambridge Monographs in Experimental Biology' and the aim is ". . . . series of authoritative, quick-publication 40,000-word monographs''. The fact that Prof. Wigglesworth has written this first volume guarantees the 'authoritative' part and the presence of very recent references in the bibliography confirms the second aim.

The work is intended for the trained biologist and those without such training may well find the going hard at times. To the many who found both interest and inspiration from the author's *Principles of Insect Physiology* the present volume will indeed be welcome.

The Introduction gives a brief and lucid historical review of the subject, states the fundamental problems of metamorphosis and discusses the evolution of the process. The histological changes occurring during moulting and metamorphosis are discussed in Chap. 2 and to quote from p. 15: "What we witness in metamorphosis is change in form in conformity with a changed way of life and *not* the progressive differentiation of a comparatively undifferentiated organism".

The humoral (endocrine) control of growth and moulting is fully discussed in Chapter 3 and we are introduced to the thoracic growth centre (prothoracic gland). This gland is controlled by neurosecretory cells in the *pars intercerebralis* of the brain and is responsible for the growth of the insect. In diapause very little or even none at all of this hormone is produced.

The physiology of metamorphosis itself is discussed in the 4th chapter and the essential role of the *corpus allatum* is described. This gland produces a hormone (the 'juvenile hormone' or 'neotenin') which actively promotes differentiation of larval characters. When production of this fails adult characters, previously suppressed, are able to develop. The action of the 'juvenile hormone' in different orders of insects is summarised.

The control of both the thoracic centre and the *corpus allatum* is by way of the central nervous system and via this system the environment and other factors are able to influence metamorphosis.

The final chapter discusses differentiation of the organism as a whole and fits the theory of metamorphosis into the total picture. One cannot but agree that: "One of the most impressive features of normal growth is the synchronization and co-ordination of the process in all parts of the body".

There is a full bibliography of 20 pages and the fact that the author's original papers take a whole page of these bears witness to his industry in this field of work. Hinton reviewed the subject of metamorphosis in the Lepidoptera in the *Trans. of the S. London Entom. Soc.*, 1950-51, and it is curious that this useful reference is absent from the bibliography.

On the whole a most interesting and stimulating book.

The format is of the excellence associated with productions of the Cambridge University Press.

N. L. B.

The Macrolepidoptera of Inverness-shire—Newtonmore District

By Commander G. W. HARPER, R.N. (Retd.), F.R.E.S.

(See *Ent. Rec.*, vol. 66, pp. 58, 90, and 124)

SUPPLEMENT No. 1

Page 125 (15). Delete *Eulype subhastata* Nolck. Mr. D. S. Fletcher of the British Museum (Nat. Hist.) has now kindly examined all my specimens of *Eulype* from local colonies and has determined them all to be *E. hastata* L., and states that he does not know of any *E. subhastata* from the Badenoch district.

In spite of bad collecting weather in 1954 I have succeeded in finding nine more species of Heterocera new to the district, and these should therefore be added as follows:—

NOTODONTIDAE

Pterostoma palpina Cl. A fresh male, of very pale straw colour, came to m.v. light at Newtonmore on 19th May 1954. It is probably not rare amongst sallows and aspen.

AGROTIDAE

CUCULLIINAE

Cucullia chamomillae Schiff. A fresh dark male came to my m.v. light-trap at Newtonmore on 21st April 1954. As far as I can ascertain, this is a 'furthest north' record for this species in Great Britain.

CATOCALINAE

Euclidimera mi Cl. Several specimens seen on different occasions, flying in sunshine in Speyside watermeadows near Kincraig and Laggan. The population probably fluctuates with the amount of grass-burning that is carried out locally.

GEOMETRIDAE

LARENTIINAE

Epirrhoe galiata Schiff. A large dark grey female came to m.v. light near Newtonmore on 5th August 1954. The species appears to be rare.

Eupithecia tenuiata Hb. A good sized colony was found amongst sallows at 1,000 ft. altitude near Newtonmore in August 1954. It appears to be local.

Eupithecia palustraria Dbld. A specimen was captured by Mr. E. C. Pelham-Clinton on the railway bank near Kincraig on 5th August 1954.

Eupithecia abbreviata Steph. A male specimen was taken flying near oak trees at night near Kincraig on 8th May 1954. It appears to be uncommon.

Biston strataria Hufn. A rather worn male came to my m.v. light-trap on 2nd April 1954. It appears to be rare.

Pseudopanthera macularia L. One male and one female were taken by day in a very restricted locality near Newtonmore on 9th June 1954. It appears to be very local.

Lastly, it is a great pleasure to report that the beautiful butterfly *Anthocharis cardamines* L. has greatly improved its hold on the district this year. Males were common everywhere in late May and June 1954 from Aviemore in the north to Laggan in the south-west of the district. I also succeeded in finding females, and a number of eggs on *Cardamine pratensis* in the watermeadows of Speyside. It is greatly to be hoped that it will maintain its hold here for many years.

This Supplement brings the total number of Badenoch macrolepidoptera at the present date, December 1954, to 336 species.

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Wanted.—Scarabaeidae from all parts of the world. Also literature dealing with this subfamily.—*589321 Sgt. Rogers, Sergeants' Mess, R.A.F., Yatesbury, Calne, Wiltshire.*

For disposal.—Meyrick "Revised Handbook of British Lepidoptera". Almost mint condition. Offers in cash, or would be willing consider exchange for literature on Continental Lepidoptera.—*Dr. N. L. Birkett, 3 Thorny Hills, Kendal.*

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An Appreciation of G. H. Verrall and his Work

By L. Parmenter, F.R.E.S.

George Henry Verrall was born at Lewes, Sussex, on 7th February 1848 and died on 16th September 1911. Besides serving his fellow men in public affairs as his family had served the Borough of Lewes for hundreds of years, he became the doyen of British dipterists with an international reputation. His many offices had included Member of Parliament, Vice Chairman of the Cambridge County Council and Justice of the Peace. He served the [now Royal] Entomological Society of London first as a Secretary, on the Council several years and for two years as its President. He was known to a far wider number of entomologists in this country through his annual chairmanship of the January meeting of the Entomological Club.

As a boy, he attended Lewes Grammar School until he was 16, gaining a good classical education and, whilst roaming the Sussex downs, a taste for natural history. After schooldays, he moved to London, reading for the Civil Service, but abandoned this to become private secretary to his eldest brother, a manager of race meetings. When his brother died in 1877, he took over the business and four years later became a partner in Pratt & Co., the racecourse managers and bankers.

In London he made the acquaintance of the leading entomologists being elected to the Entomological Society of London at the age of 18 in 1866 when the membership was only 207. In December of that year his first entomological publication appeared: his one and only on Lepidoptera, recording his capture of the second British specimen of Rambur's China mark *Diasema ramburialis* Dup. at Lewes on 29th October 1866. He had compared his specimen with continental examples in Mr. Stainton's collection. The note appeared in the *Entomologist's Monthly Magazine* whose editors in those days were Dr. H. G. Knaggs, E. C. Rye, R. McLachlan and H. T. Stainton, F.R.S. His choice of journal is evidence of Stainton's influence. Verrall obviously benefited from his meeting in those first years of manhood with the great entomologists of the Victorian reign. J. W. Dunning and R. McLachlan were the secretaries of the Entomological Society. Professor J. O. Westwood, H. W. Bates and A. R. Wallace were prominent. In 1870, the latter followed Bates into the Presidential chair. F. Smith, the hymenopterist, was a Vice-President (1869). McLachlan, in February 1870, produced his mss. of the first part of a Catalogue of British Insects—on the Neuroptera, which was published by the Entomological Society in 1870. This was followed by Hymenoptera aculeata by Smith in 1871, and by other sections of the Hymenoptera in the two succeeding years by T. A. Marshall, Hemiptera by J. W. Douglas and J. Scott in 1876. There had been many prior discussions before 1870 on the catalogue and Verrall's ability and keenness must have been discerned by Stainton and McLachlan. Verrall was diverted to the flies. The Diptera till then had been very neglected and he decided to tackle this order and began with the Hover flies.

In 1868, it is recorded, he acquired a rare dipteron, a male *Cheilosia chrysocoma* Mg., at Stevens' auction sales. Although he was an energetic collector he did not entirely neglect the opportunity of building up his collection with purchases. In later years he bought foreign collections to secure the 'type' specimens. Writing from Denmark Hill in the *Ent. mon. Mag.*, 1868, V: 7-8, on 8th May, on "Notes on some British Syrphi", he mentioned Walker's *Insecta Britannica—Diptera* and the works of Stephens, Curtis and Schiner, showing that he was already reading the literature then available on the order. He concluded with a revealing sentence:—"The above remarks show a little of what remains to be done among even the larger species of Diptera, and it seems to me that the Entomological Society can scarcely hope to be able to publish a satisfactory catalogue of them within some years, unless more workers appear in the field". Verrall produced the first List of British Diptera in 1888, a list of 2,500 species. By 1945 this had grown to 5,200 and has steadily increased since then.

By November 1868, in another paper on Syrphidae, he quoted from works of the continental entomologists—Fabricius, Linnaeus, Macquart, Meigen and Zetterstedt. The next year he described a new species of *Bibio* from his garden at Denmark Hill and wrote on Dolichopodidae and Scatopsidae. Syrphidae, apparently on migration and collected that year at Walton on Naze by J. W. Dunning, were referred to Verrall for identification. In these first years in London he visited the collecting grounds then favoured by the London entomologists such as Darenth, Richmond, Box Hill and Leith Hill. In January 1870, when still only 21, his "List of British Syrphidae" appeared and he then asked for collections of Syrphidae for examination and said that he hoped to raise the list to at least 200 species. The following month his paper on the genus *Cheilosia* was published and then came others on the family of Syrphidae in that year and the next. His first important collecting trip was successfully made in June 1870, to Rannoch, a locality already famous from studies of Dr. F. Buchanan White and his friends of the Perthshire Society of Natural History and by other collectors of Lepidoptera. The following year he visited Bournemouth, Poole and Penzance. In June 1872, he collected in Epping Forest and visited the New Forest in the same year. Weybridge, Woking, Windsor Forest, Reigate, St. Marys Cray, Foots Cray and Southend were among the localities visited in the next 3 or 4 years. Sometimes these trips were also excursions of the Entomological Club. Already the familiar pattern of collecting was taking shape with visits to as many types of scenery and habitat as possible, distributed from north, south, east and west. The constant mention of Denmark Hill in his writings show that he did not overlook the need to gather material for study from his own garden.

During this period, Douglas and Scott had been busy describing Hemiptera in the *Entomologist's Monthly Magazine* of which Douglas was an editor. In one of Scott's papers there is a reference to his collecting in the Poole area with Verrall and one of the captures was afterwards described and named after Verrall in 1875. Another of his collecting trips was made in 1881 when he stayed at Yarmouth in June. Using the new railway he visited Filby, Hickling, Martham and Ormesby broads and by October he had completed a list of 128 species, mostly Dolichopodidae and Syrphidae—the first families that he had studied intensively. Two years later he spent a fortnight in June on the Island of Arran gathering between 1,200 and 1,300 specimens of over 200 species. By December he was able to list them showing that he had paid attention chiefly to the Empididae, Dolichopodidae, Syrphidae and Muscidae.

In 1879 he had married, built a house in Newmarket, Sussex Lodge, and begun his visits to Chippenham and Wicken Fens. How much these rich haunts of rare insects attracted him is proven by his slipping off to visit Chippenham after cutting short a duty visit to a local Horse Show. It will be remembered he joined with Walter Rothschild in purchasing Wicken Fen for the nation, saving the area for the future enjoyment of naturalists.

As his responsibilities grew, his indoor studies intensified and his spare time for collecting decreased. He had collected extensively and intelligently all over the country himself, seeking species new to him but did not forget to gather from his own garden at Newmarket as he had at Denmark Hill. By 1891 he was able to report that he had found over 500 species in the grounds of Sussex Lodge. He even collected at racecourses and when visiting the Crystal Palace. Gradually he acquired his sound reputation and many entomologists both dipterists and specialists in the other orders sent collections of flies to him. At the end of the century Dr. D. Sharp had become an editor of the *Ent. mon. Mag.* and urged Verrall to press on with his studies and even threatened to produce a new list of the British Diptera himself for publication in October of 1901. Thus challenged, Verrall, with Wainwright's assistance, produced his second edition of the list in that year. It gave some 2,800 species but he did not wait to deal adequately with the tiny Cecidomyiidae and related families. When it is remembered how much poorer the entomologists of his day were, with regard to equipment and house lighting, his omission will be understood.

This was a great year for the dipterists, for in 1901 Verrall's long awaited volume on the Syrphidae, Platypezidae and Pipunculidae appeared as volume 8 of a projected series on the British Diptera. The next volume, 5, dealing with the families Stratiomyidae to Cyrtidae, came out in 1909. By 1901 he had gathered sufficient material together to be able to consider dealing with the Chironomidae in his third volume and Mycetophilidae in his fourth. But in 1909, he announced only his first intention, the Chironomidae, but mentioned that his nephew, Mr. J. E. Collin, was commencing work on a valume devoted to the "Muscidae Acalyptratae". Unfortunately only the two volumes were published. Their appearance gave a tremendous impetus to the study of diptera in this country. During their preparation collectors had been encouraged to submit their captures to him and now the excellence of the treatment of his studies gave further encouragement. The meticulous descriptions, adequate comparative keys, useful information on distribution and times of appearance, with illustrations drawn by his gifted nephew, Mr. J. E. Collin, have stood the test of a half century. Although since 1909 more species have been found in the families concerned, his works have not been superseded and must be consulted by all students.

He had supported the Entomological Society for many years. In 1873 he had become one of the Secretaries, bringing him further opportunities for meeting other entomologists. He corresponded with foreign dipterists and travelled abroad visiting the European capitals to see the famous collections and to examine the 'type' specimens. But he did not collect whilst abroad. As a young man he had been invited to attend the field excursions of the Entomological Club and in 1887 he was elected a member of that exclusive group. He brought enthusiasm and drive, resuscitated the Club and at the annual January meetings at which he presided he gathered entomologists from all over the country, young and old, of varied tastes, education, and wealth, whether interested in diptera or other insects. His kindness, abounding energy, humour and thoughtfulness inspired these gatherings and the entomologists of his day. Correspondents were introduced to each other, readers met the authors, and many life long friendships have arisen from first meetings at these annual suppers. Their value was so generally recognised that Verrall's memory is still commemorated by the holding of the Verrall Supper each January by the Entomological Club.

After service on the Council many times, he became President of the Entomological Society for 1899 and 1900, at a time when he was preparing his volume on the Syrphidae. Among those joining the Society in 1899 were H. W. Andrews, E. C. Bedwell, J. E. Collin and Hugh Main. Under Verrall the Society increased to a record membership of 438. Although an energetic collector in the field he was essentially a systematist and his comments on life histories and habits are all too rare. He had recorded his rearing of a Phorid from a dead Hornet and Cecidomyiidae from galls on gorse in his early days. During his lifetime many bionomical studies were made in this country by others but Verrall concentrated on taxonomy. He obviously regarded correct identification as a first essential. His presidential addresses were based on his views and experiences as a systematist. He detested slipshod work, whether handwriting or in the writing of descriptive articles. A classical scholar with a knowledge of French and German, he had little patience with those who through ignorance misspelt scientific names. He even criticised adversely J. W. Tutt's invention of *eppingella* for a species of *Proutia*, first found in Epping Forest, fearing as he said, that the next might be called '*Pontrhydfendigaedmynachlochfauriella*' from its original locality! Dubious as to the need for long descriptions but derisive of those of few words, he emphasized the need for comparisons and produced admirable keys himself. He had quickly and automatically become the referee for diptera in this country. As the years went by, he came to dislike the elementary problems referred to him but was willing to help the serious student or discriminating collector. Many of the lists appearing in the Victoria County histories must have depended in most cases on specimens 'vetted' by Verrall and those he had trained.

The only 'local' society that he appears to have addressed was that at Birmingham where C. J. Wainwright was the keen secretary of the entomological society and R. C. Bradley, a collector of Syrphidae and other diptera, the chairman.

He published but two papers on foreign diptera and most of his articles appeared in the *Entomoligist's Monthly Magazine*. However, when J. H. Leech took over the *Entomologist* from Newman, with R. South as editor, Verrall agreed to join the panel of referees in 1890. But only a few papers appeared in that magazine from him.

Undoubtedly his first identifications were made with the help of the descriptions by A. H. Haliday in F. Walker's three volumes of *Insecta Britannica—Diptera*, aided by specimens in the Entomological Club collection. Impressed by Stainton's work in dealing with the Lepidoptera of the British Isles, he made an excellent start by listing the species of flies then known in this country. He eliminated many of the 'rubbish' names of Walker, as he termed them, names of species with worthless inadequate descriptions and with the type specimen destroyed.

During the period from the appearance of his keys to the British Tipulidae and Dolicopodidae, to that of his two great volumes, he had led others to the study of diptera. The Rev. W. J. Wingate keyed most of the British diptera in 1906 in his "Durham Diptera". F. V. Theobald produced a single volume in 1892 covering a few families but failed to complete his series. In 1891, R. H. Meade commenced his annotated list of the British Tachinidae and his keys to the Anthomyidae in 1897. The mounting interest in the order is shown by the publication by the British Museum (Nat. Hist.) of a 16 paged pamphlet by Major E. E. Austen on "How to collect Diptera (Two-winged Flies), with Notes on the Habits of the perfect Insects and Larvae" in 1900. In 1906, Austen followed this with an illustrated volume on the British Blood-Sucking Flies. Others who began to write on Diptera during the Verrall period included many distinguished entomologists, *e.g.* E. N. Bloomfield, R. C. Bradley, C. W. Bracken, E. Brunetti, G. H. Carpenter, A. E. J. Carter, J. E. Collin, J. Collins, W. E. Collinge, C. W. Dale, H. F. Fryer, J. C. F. Fryer, P. H. Grimshaw, A. H. Hamm, J R. Hardy, F. J. H. Jenkinson, C. G. Lamb, A. D. Imms, L. C. Miall, C. Morley, J. R. Malloch, C. R. Osten-Sacken, E. A. Omerod, J. Waterston, J. H. Wood, and Col. J. W. Yerbury. The work of the systematists led to the amassing of the great collections made by Col. J. W. Yerbury, J. H. Wood, A. Thornley and C. J. Wainwright now in the British Museum (Nat. Hist.), and by the others who have given Oxford, Cambridge, Manchester and Glasgow their famous collections of diptera. What a host to have inspired and encouraged.

At his death his valuable large library and his collections passed to his nephew, Mr. J. E. Collin. He had helped Verrall for so many years, had lived as a next-door neighbour and has since made such a brilliant contribution to British Dipterology as to outshine his uncle.

The Distribution of *Sterrha rusticata* Schiff. in the British Isles

By A. J. Showler, M.Sc.

In the recent notes on *Sterrha rusticata* Schiff. in this Journal uncertainty has been expressed regarding the distribution of this insect in the British Isles, and the following article is an attempt to correlate information recently obtained from various sources.

The moth was well known in the nineteenth century. Morris (1872) gives localities as "Isle of Portland, Lewisham and Northfleet". Barrett (1893) gives a similar region, but with some additions, *viz.* "Sheerness; Folkestone—rare; Brighton and Lewes; Portland; coast of Devon once''. Newman (1869) mentions among other things that it was ''also said to have occurred in the Isle of Portland'', thereby implying its disappearance. Canon Edwards (*Ent. Rec.*, 1954, **66**: 253) also mentions that Stainton knew of it at Lewisham. South (*Moths of Br. Is.*, **2**: 111) sums up the localities mentioned above, and also adds others:—''Kingsdon, Dover, Folkestone; Brighton, Lewes, W. Horsham; Portland; Rame Head, Torquay; single specimens from Stowmarket and Felixstowe'', and there is little doubt that the insect has occurred in all, and still occurs in many, of these places.

However, Walker (*Ent. mon. Mag.*, 1932, **68**: 146) in an article on St. Kilda insects, quotes remarks by Hewitt (*Ann. Scot. Nat. Hist. Soc.*, 1907, 220) on *'Eois' rusticata*, which the latter claimed to have taken on St. Kilda. This has led Bretherton (*Ent. Gazette*, 1951, **2**: 234) to claim that ''*S. rusticata* Schiff. in N.E. Kent, the Isle of Portland, Torquay and St. Kilda, has perhaps the oddest distribution of any British moth'', a statement which cannot be justified in the light of the information to be presented. H. C. Huggins (*Ent. Rec.*, 1954, **66**: 201) casts doubt on the St. Kilda locality, and is supported by Prof. Heslop-Harrison, who (*in lit.*) suggests that Hewitt mistook local forms of *Colostygia didymata* L., which may be very different from the type, for *rusticata*. Possibly the St. Kilda forms resemble those which South (*op. cit.*, **2**: 187) describes from the Shetlands: ''the female is smaller, paler, often whitish, and sometimes pale ochreous; the latter form is often prevalent in the Shetlands; the central band is the only distinct cross-marking in this sex''. An insect such as this could perhaps be mistaken for *rusticata*, and I feel that on this evidence, the absence of specimens, and the unfavourable habitat, contrasting markedly with its southern haunts, St. Kilda should not be included in the localities for the insect, unless specimens can be obtained.

If, then, the occurrence in St. Kilda is discounted, the distribution of this moth falls fairly well into place, when both past and present localities are considered; even this fact supports the case for the mistaken identity of the St. Kilda insects. *S. rusticata* is distinctly coastal in habitat, if this term is applied loosely enough to include the banks of the Thames, though it may occur inland for several miles, and there are occasional records for it in localities considerably further from the sea. The reasons for this preference are not easy to see, for it is found mainly around elm and ivy, and on nearby walls and fences.

I would tentatively suggest that at one time *S. rusticata* occurred along both banks of the Thames from London eastwards, and thence along the South Coast more or less continuously into Sussex, and spreading along the coast to be found in the more favourable localities, until in Devon it reached the limit of its westerly distribution. From the Thames, too, it may have reached sparsely into Suffolk as indicated by the localities mentioned by South.

In many of these localities the insect is still to be found, and in others it may well occur if looked for; and it must be remembered that it is not a conspicuous, nor a 'popular', insect, and so may well be overlooked. In conclusion, therefore, I attempt to summarise the present distribution, which appears to be limited to both banks of the Thames (in a broad sense, to include the estuary) and Torquay.

The insect is still found on occasion in London, Canon Edwards (*loc.*

cit.) having taken a specimen only last year in Dulwich, while I have previously referred to another moth seen at Hither Green (*Ent. Rec.*, 1954, **66**: 164) in 1951 by D. F. Owen and K. Hyatt. Further east, the moth is common in N.W. Kent from the London border to Dartford (*ibid.*), Gravesend, mentioned by H. C. Huggins (*loc. cit.*), and Higham, another old haunt. It is found in Sheppey (Sheerness had already been mentioned) and Thanet, where Margate and Ramsgate are its strongholds, but then, moving south and west, the records are mostly of the past. Embry and Youden (1949) state "there are no recent records, but it has been found at Dover, Kingsdown and the Warren". Morley (1931) says it "was taken many years ago in the Warren". It has not been seen in recent years at Brighton (P. W. Cribb and R. C. Dyson *in lit.*) and Dr. A. A. Lisney, in spite of enquiries, can find no recent records from Portland. He quotes records from *Trans. Soc. Brit. Ent.*, **9**, Pt. I, for Dorset as "Cranborne, one specimen (no date). Portland, a few specimens between 1877 and 1890". However, there are specimens at Tring labelled "Portland, 1901, N. M. Richardson". Finally, in the West, F. H. Lees (*in lit.*) states that *rusticata* is rare at Torquay. None was seen in 1954, but some were observed by A. H. Dobson in 1953. The list of *Devon Lepidoptera* (1952) gives it as "rare and local" at Torquay, with a few dates in the early part of the century.

Returning to the north bank of the Thames, the moth is apparently widespread, but not found so commonly as on the Kentish side. There are specimens at Tring taken by Burrows at Mucking, Essex, in 1917, and near this locality T. G. Pearman has recently recorded *S. rusticata* as follows:—4 examples from ivy on wall, early June 1953; 1 example, same habitat, late July 1954. Horndon-on-the-Hill, 1 example at light, early July 1953. Since these were random captures this seems good evidence for the insect's residence. Horndon is about 4½ miles from the Thames, and this whole area lies just north of Northfleet, Gravesend and Cliffe Marshes. H. C. Huggins (*loc. cit.*) also mentions that the moth is found in several places near Southend, though it is not common.

In brief, then, *Sterrha rusticata* Schiff. has a more or less continuous distribution down both banks of the Thames east of London, but is much more common in Kent than elsewhere. It occurs on Thanet, but at present no colonies between here and Torquay are known, having apparently died out some 50 years ago. The record for St. Kilda should be viewed with considerable doubt, unless further supporting evidence can be produced.

In conclusion I should like to thank J. M. Chalmers-Hunt for his information on Kentish localities, and all those mentioned in the text for their help and co-operation, and their time spent in making enquiries, often negative in result. I should like to thank particularly Professor J. W. Heslop-Harrison for his information and references regarding St. Kilda, and T. G. Pearman for his records and details which he himself had intended to publish.

Collecting Notes from Sheffield, 1954

By W. Reid.

The year 1954 was not good from a collecting point of view. We had, I think, more sunshine than usual, but this was accompanied by very cold winds, which persisted over long periods. Numbers taken in the trap in the garden were very low compared with previous years, and nothing out of the ordinary arrived except my first records of *Cucullia absinthii* L., *Griposia aprilina* L. (a female on the 10th October), *Sterrha inornata* Haw., and *Philereme transversata* Hufn. (*rhamnata* Schf.), the latter being a very worn specimen. I am unaware of any Buckthorn growing in my vicinity. *Apatele alni* L. was much more scarce than usual, only three specimens coming to the trap. Little else was worthy of recording, except perhaps the darkest *Apatele leporina* L. I had ever seen. The anterior wings are almost completely black.

I had more success on my collecting trips than at home. My first was on 10th April when I met Mr. Gordon Smith at a locality in North Wales. I set up the portable m.v. trap in the hotel garden, and we went out together to another locality some 10 miles away to work with the sheets. Curiously enough, little came to the sheets, but a large number of moths were in the trap in the hotel grounds when we examined it next morning. I was particularly pleased to find about 40 *Polyploca ridens* Fab. in very fresh condition, from which I was able to select a nice series. Other insects included some very pink *Orthosia incerta* Hufn. (*instabilis* Schf.), *Orthosia munda* Schf., *Orthosia gracilis* Schf. (all the normal colour), *Panolis flammea* Schf. (*piniperda* Panz.), *Graptolitha ornithopus* Hufn. (*rhizolitha* Fab.) (included several females of the latter), *Orthosia miniosa* Schf., *Orthosia cruda* Schf. (*pulverulenta* Esp.). *Xylena vetusta* Hb. and *Xylocampa areola* Esp. (*lithorhiza* Bork.).

On the 30th April I made a hurried visit to Gloucester when I spent two nights with Mr. and Mrs. Ronald Demuth. Again cold and wet weather, and a visit to a place in the Forest of Dean, where *Odontosia carmelita* Esp. had been taken two days earlier, only produced one *Agrotis cinerea* Schf.—a very early date. Although *Xylomiges conspicillaris* L. had been plentiful in his garden during the previous few days, only one appeared in his trap that night, which also produced a heavy downpour of rain. I was more successful with *O. carmelita* Esp. at Sherwood Forest on the 8th April. I had long thought that the insect should be there amongst the tall birches, and the m.v. lamp brought in three, in almost frosty conditions. *Chaonia ruficornis* Hufn. (*chaonia* Hb.) was about in fair quantity, but little else was noticed.

From 26th May to the 3rd June I spent part of my holiday at Hamstreet. Cold nights and brilliantly fine clear days were against good collecting conditions. *Hadena albimacula* Bork. was just coming out, but daily searching of the posts on the shingle at Dungeness gave me a short very fresh series, together with a few of the light fawn *Hadena lepida* Esp. (*carpophaga* Bork.) and *Hadena conspersa* Schf. (*nana* Rott.). No *albimacula* turned up at the m.v. lamp on the one night I used it on the shingle, where Mr. Austin Richardson was also operating, but hosts of *cinerea* and *lepida* came in, including some very pale forms of the latter, and well marked females of the former. While at Hamstreet, I had the good fortune to meet Mr. Hare, Mr. Symes, Mr. Carr and Mr. Cue of Ashford. Together we took a few *Euphyia luctuata* Schf. which were flying freely about 5.30 in the afternoon, while the lamps at night in the woods brought in several male *Minucia lunaris* Schf., a single *Cucullia gnaphalii* Hb., *Tethea or* Schf., four *Colobochyla salicalis* Schf. and many more common species. Thanks also to the kindness of Mr. Duffy, I was able to make my first capture of *Pachetra sagittigera* Hufn. (*leucophaea* View.) and *Siona lineata* Scop. (*dealbata* L.), the latter drying its wings on the grass stems. On my way home I called at East Hoathly in Sussex where I found *E. luctuata* flying in some numbers. This insect seems to be spreading.

On 19th June, I made an evening trip to Spurn Point, the quarry being *Heliophobus albicolon* Hb. The insect must be fairly common there, as I took 10 in spite of a cold easterly wind, but most were worn. Several very distinctly marked sandy coloured *Apamea infesta* Ochs. (*anceps* Hb. *sordida* Bork.) were also taken. I have not seen this form elsewhere.

Another evening trip to Sherwood Forest at the latter part of June produced some fresh *Hadena contigua* Schf. but little else. I was rained off before midnight.

Collecting conditions remained poor during August and the only outstanding insects taken at Holyhead during the first week of August were single specimens of *Apamea furva* Schf., *Triphaena interjecta* Hb., and *Coenobia rufa* Haw. (*despecta* Tr.). One moderately good night but with a high wind, on the sandhills, only produced three *Agrotis vestigialis* Hufn. (*valligera* Schf.).

I had to be in London in the last week of August, and again visited Hamstreet. Little came to light, but *Eilema complana* L. was fairly plentiful, and the second brood of *Colocasia coryli* L. was well out. Unfortunately, I did not find larvae of *Calophasia lunula* Hufn., in spite of visiting many patches of the food-plant, and my lack of success can only be put to my inexperience as the larva was plentiful, in all stages, during the following week. But as I cannot obtain the food-plant in Sheffield, it is perhaps just as well I missed them! Taking the year as a whole, poor weather made collecting unpleasant, but I was again fortunate in taking several species new to me.

A Note on the Life History of *Brachionycha sphinx* Hufn.

By H. Symes, M.A.

I have long regarded *Brachionycha sphinx* as a species of more than usual interest. Among the reasons for this are the time of year when the moth appears, the handsome larva with its strange attitude, and the fact that it is generally considered a somewhat difficult species to rear from the egg.

My first acquaintance with *B. sphinx* in any stage of its existence was some forty years ago, when I found a full-grown larva displaying itself on the top of a privet bush, in the attitude common to itself and its congener, *B. nubeculosa* Esp., the attitude which has given the insect its English name of "Sprawler" and the old generic name *Asteroscopus*, "star-gazer". I now know, from the footnote to Major General G. F. Johnson's article on rearing *B. nubeculosa* (*Ent. Rec.* **66**: 103) that the larva was bringing into action its repugnatorial gland. The locality was Cogley Wood, near Bruton, to which Dr. Kenneth Hayward made nostalgic reference in one of his articles from Argentina (*Ent. Rec.* **65**: 203). It used to be a veritable paradise for bygone

Somerset entomologists. This larva went down in a flowerpot, but did not pupate. Later in the year, however (the actual date was 4th November), while digging under elms for pupae of *Mimas tiliae* L. in the afternoon at Wyke Champflower, near Bruton, I unearthed a strange pupa from which that very same evening there emerged a large female *B. sphinx*, a remarkable instance of perfect, if most lucky, timing. It was twenty years before I saw the larva again, when I beat a number of them from the blackthorn and hawthorn hedges on the outskirts of the woods north-east of Oxford, and succeeded in breeding a few moths of both sexes.

My first attempt to rear the species from the egg took place in 1938-9. On 5th November 1938 I found a pair *in cop.* on a hawthorn trunk at Wantage. That night the female laid a mass of grey eggs in a glass-bottomed collecting box. I kept this in a cool place, and the eggs began to hatch on 13th April 1939. I fed the larvae on oak, which they chose in preference to blackthorn, hawthorn, elm and sallow. For two or three weeks they throve, and on 8th May I sent two dozen to the late Claude Rippon. But after the third moult they began to die off rapidly, and only one changed into its last skin. It did not long survive. Meantime I received an S.O.S. from Mr. Rippon (a remarkably successful rearer of larvae) saying that all his larvae had died, and could I send him a few more. In thinking over possible causes for this failure, my first idea was that oak was perhaps not the best diet for the larvae in their later instars: the parents had probably fed on hawthorn. Lately, however, I have inclined to the belief that the cause was a virus disease.

My second attempt was more successful. On 28th May, 1953, Dr. King and I each found two large larvae, all feeding on sallow, at Whiteparish, Wilts. Mine went down in a day or two, and on 30th October two females emerged, one of them a cripple. I gave this to Dr. King, who took it to Whiteparish with the idea of assembling: in this he had no luck, but two males came to his light, and he obtained a pairing and a large number of eggs. He gave me a good helping of these on 1st April 1954, when one of them hatched: most of the rest hatched on 2nd and 3rd April, during the night or early morning. The young larvae were dark grey at first, with a black head, but within a few days they were pale green, exactly the same colour as the young sallow leaves on which they were feeding. A number of them had their first moult on 11th April, and in their second instar were pale green, including the head. I noticed a few larvae at this stage adopted the characteristic "star-gazing" attitude. On 18th April one larva changed into its third skin. I now began to take various precautions designed to prevent a recurrence of the fiasco in 1939. On 22nd April, when my larvae numbered four dozen, I sleeved twelve in their third instar on a sallow bush in my garden, and on 24th April I put twelve larvae, also in their third instar, in a cylindrical cage and gave them hawthorn to eat. On 27th April one of these hawthorn feeders changed into its fourth skin, the first to do so. On 8th May one larva went down: by 24th May twenty-four larvae had gone down.

It is interesting to note how the larvae responded to the different kinds of treatment they received. The experiment of giving them hawthorn was not a success. Only two of the twelve went down: the rest died, or were released when looking unlikely to do any good. Of the twelve sleeved on sallow none died: eight went down and four were released. Of the remaining twenty-four, which were kept in two ordinary wooden breeding cages and fed on sallow, fourteen went down, two or three died, and the rest were released. I did my best to avoid letting too many larvae go down in the same receptacle, and I am sure that Major General Johnson is right in suspecting that twenty larvae of *B. nubeculosa* are too many to go down in a nine-inch flowerpot, and that the same applied to *B. sphinx*. Some years ago when I bred a few *B. nubeculosa* I let too many larvae go down in one box, and several of the first to do so must have been disturbed by later comers, for they made their way back to the surface and perished miserably. This year I used four receptacles: one nine-inch flowerpot, in which ten larvae went down, a smaller flowerpot, which accommodated five, and two deep wooden boxes. I lined the bottom of all these with an inch of clay rammed tightly down, as I had been advised to do when rearing *B. nubeculosa*, and when I came to remove the pupae I found that four or five larvae had gone right down into the clay. A mixture of peat and sand was used to fill all the receptacles. I put five larvae in the larger of the two boxes and four (the first to be full-grown) in the smaller. All these nine produced live pupae. From the ten larvae put in the large flowerpot, seven live pupae resulted, but the five in the smaller pot yielded only two good pupae. I was rather surprised that 100% of the larvae that went down in the wooden boxes produced pupae, while only 60% resulted from those in the flowerpots. From a total of eighteen pupae, fifteen moths emerged, six, all females, on 5th November, two males on 8th November, two females on 9th, two males and one female on 11th, one male on 14th and one female on 15th November. On this date, one pupa was still of the same pale brown colour as when it was unearthed in September, and was obviously going over for another year. In 1933 I bred a female moth from a 1932 larva.

The imago emerges during the afternoon. The earliest I recorded came out at approximately 1.30 p.m., and the latest at 6 p.m. Some of the females did not begin to expand their wings until two hours after they emerged from the pupa, and in one remarkable case the wings expanded twenty-four hours after the moth had emerged. The female is a clumsy, lethargic insect: one that I bred fell on its back during the night on to the floor of the breeding cage, and failed to right itself by the morning, but in attempting to do so it rubbed off a great many of the scales on its forewings. I bred ten females and five males, but whereas all the males were perfectly formed, two of the females were deformed in all their wings, and one was slightly deformed in one underwing.

Dr. King, who agrees with me about the lethargy of bred specimens, has pointed out to me that the pupa has a very fragile skin. After he had unearthed his pupae, he found that two of them went mouldy, probably because their skin had been slightly broken. Two of mine, while lying on a surface of sand and peat, developed a stove-in appearance, presumably for the same reason, and the contents went rotten. All the same, I think it is better to unearth the pupae about a month before the moths are expected to emerge, at the risk of damaging one or two, rather than to leave them down in the earth, at the risk of some of the moths being unable to make their way up to the surface.

The larva is, of course, polyphagous, but I believe it has a preference for certain foods in certain localities. In the Oxford area it is undoubtedly found most frequently on blackthorn and hawthorn: I never saw one on oak or sallow. At Whiteparish, in South Wilts, I have found it only on sallow: one in 1947 as well as the four taken by Dr. King and me in 1953. I also found one on sallow at Ham Street, Kent, on 27th May 1954. I have never seen it on privet since the first time I met the larva, but I do not think it fed on oak or sallow in the Bruton district, as I searched and beat these trees very thoroughly for some years and could hardly have missed it. I have reason to believe that elm was the usual foodplant in that district. I did not see a single larva during seven years' residence in the New Forest, but the Rev. F. M. B. Carr beat a few from oak near Brockenhurst in 1954. In Cranborne Chase, Dr. King and I found two or three larvae on maple a few years ago.

Some authorities, *e.g.* Newman & Leeds, and Scorer, state that the larva is a cannibal. I must say that on the two occasions when I kept the larvae in some numbers I did not see any evidence of indulgence in this vice, and I believe that the imputation is largely undeserved. When cannibalism has occurred, it has probably been due to lack of fresh, succulent food.

In his Dorset List, Mr. W. Parkinson Curtis says that he thinks many of the reports of *sphinx* larvae really refer to *Amphipyra pyramidea* L. There may be a superficial resemblance between these larvae at certain stages, but they are not really difficult to distinguish. *B. sphinx* has a somewhat larger head, the swelling at the tail end is rounded in *sphinx* and comes to a sharp point in *pyramidea*, and the latter does not adopt the "star-gazing" attitude so characteristic of *sphinx*.

Nowhere have I found this species so plentiful as in a wide range of country round Oxford. In several years I have beaten a good number of larvae from the hedges on the outskirts of the large woods near Stanton St. John, N.E. of the city, and have found the imago fairly common at Wantage, to the south of it. Here, on 10th November 1936, I found eleven males sitting on a high red brick wall near an old-fashioned bracket gas lamp almost in the centre of the town. They had presumably been attracted to the light on the previous evening, for there was no sign of a female there as an alternative attraction. In fact, I have seen only one female, apart from bred specimens, and that was when I found a pair *in cop.*, as already mentioned.

[I have reared this species from the egg on several occasions, once continuously for three or four years, and had no difficulty with the larvae *after* I had discovered the virtues of deep hard-compacted pupating material (I always used soil, as I found that these larvae went through peat compost with the ease and rapidity of a mole) and syringing the foodplant each evening with rainwater. See my book *Talking of Moths*, 1943, pp. 52-54. The nocturnal habits of the larva are most interesting, and rather eerie to watch, progression being fast and the larva having the appearance of a beast of prey looking for its meat.

I never discovered what the objective was during this apparent hunting, succulent leaves being disregarded and no heed paid to, or rather offensive action taken against, other and smaller larvae. I never saw one of my larvae attack or eat another, though various species were kept in the cages on purpose to decide the allegation of cannibalism. Perhaps other observers will tell us their experiences with this larva. Barrett (*Lep. Br. Is.*, **3**: 157) says that "The larvae, when young especially, bear a shocking character as cannibals". *B. sphinx* is very common in East Herts and West Essex, sometimes abundant, and the moths are usually to be seen at street lamps in the town where I live. It was also plentiful round about my house in Montgomeryshire in 1940-5.—P.B.M.A.]

Burghfield Common Today

By B. R. Baker.

These notes are occasioned by some remarks made by Mr. P. B. M. Allan (*Ent. Rec.*, **64**: 338-39, 345) with reference to *Odontosia carmelita* Esper. In his footnote to Mr. Symes's interesting article on *carmelita*, Mr. Allan mentioned the names of two Reading collectors, W. Holland and W. E. Butler, saying that they used to find *carmelita* larvae in a favoured locality. In the Museum at Reading we have the Holland collection but unfortunately scarcely a specimen bears any data. Holland's diaries were passed to a relative and thereby was lost a most valuable account of the lepidopterous fauna of the Reading area from the eighties up to Holland's death in 1930. The collection was actually given to the Museum on 24th August 1883, and must have been added to from time to time. I now know, thanks to Mr. Allan, that the series of *carmelita* in the Museum collection comprises specimens from the Burghfield area and not, as I had previously thought, from east Berks where the moth also occurs.

Holland and Butler must have had some wonderful experiences over the pine and heather stretches south of Reading, though the former collector certainly earned his captures. He would walk from Reading to Pamber Forest, collect there all day, and then walk back again at night, the round trip being about 25 miles, and this approximation is apart from any extras accumulated by searching tree trunks!

Burghfield Common was a great place for *Endromis versicolora* L. and the Museum has a number of well preserved local specimens. South (1939 third edition) still gives "the Reading district of Berks" for *versicolora*; but my colleague, Mr. C. Runge, who worked with Holland, tells me that the species died out about 1919. In that year Mr. Runge saw a solitary specimen and as far as we know that was the last observed Berkshire *versicolora*.

Aegeria spheciformis Schiff. used to be most abundant in the Burghfield area in Holland's time and C. R. still recalls an occasion when 40 males were attracted to a virgin female that he, and the Birmingham collector Denham, took over there for "sembling". At the present time *spheciformis*, though still existing, is much scarcer, and the larvae need working for industriously.

Amathes agathina Dup. is another moth that used to be taken at Burghfield—there is a short series in the collection of the late R. D.

Sitwell labelled "Three Firs", 1906 and 1907 (the Sitwell collection is also in Reading Museum).

In August 1954 I spent several hours on the Common after dark trying to turn up *agathina* again—but without success. This moth is said to be reticent of flying to light so I adopted the policy of taking light to the moth. However, in the course of 4 hours wandering through the heather, carefully examining the flower-heads, I too must have become dazzled by the glare of the pressure lamp for I:—(1) found no *agathina*, (2) became completely lost in the process and (3) found 1 *castanea* (red form) which must have taken pity on my quest and given itself up as a token reward.

The following week Messrs. Fairclough and Parfitt tried m.v. over the same area, but with no success—they never lost themselves, however, and so were not subsequently rewarded with a male *castanea* (red form).

A. agathina may still occur at Burghfield for there's still good, deep, heather in amongst the young short stuff, but if it is there it's a most unco-operative moth.

In spite of the absence of *versicolora* and the apparent scarceness of *spheciformis* the Burghfield-Pamber extent is still a fine area for the entomologist. Local building operations have claimed much of "Holland's territory" and it seems that the old "Three Firs" inn will soon be swallowed up by the erection of new houses; but nevertheless there's still plenty of birches where *tincta* larvae may be found in the spring, where *ridens* and *flavicornis* fly up to the lamp, and where *carmelita* evidently still breeds.

A newcomer to the area—at least since Holland's day—was first noticed in 1944. On a July afternoon of that year I was cycling back to Reading as a weekend pass was rapidly coming to an end and I had a train to catch back to camp. Two moths on a telegraph post registered in the corner of my eye and in spite of a voice saying "they're only *ligustri*" another voice, more insistent than the first, said "turn back and look closer". I was still staring at the unaccustomed sight of a pair of *Hyloicus pinastri* L. when C.R. came cycling up and I was forced to leave him with our prize bag and again set off in great haste for Reading. 1944 saw the advent of *pinastri* in our district—in 1945 about six specimens were found at rest on pine trunks—in the winter of 1947-48 upwards of a dozen pupae were obtained by systematic digging, and nowadays, as in so many other places, the moth is well established with us.

A moth which was probably overlooked by the old collectors is *Brephos notha* Hübn. This was discovered in our district by Mr. R. W. Parfitt in 1948; but aspen is not abundant over the Berks-Hants heathland and *notha* is very restricted in its range.

I have once taken *Parascotia fuliginaria* L. on the edge of Pamber Forest—a solitary specimen came to sugar in July 1950. The moth undoubtedly is present on these outlayers of the Bagshot Beds, and systematic work should turn it up again.

Saturnia pavonia L. is common at Burghfield, but, as far as I know, *Lasiocampa quercus* L. has never occurred in the area. This is rather surprising as both species occur together on similar heaths in east Berks.

Cleora cinctaria Schiff. is present over the whole area, and searching tree trunks in early or mid May, according to the season, usually produces a fecundated female. I have seen series of *cinctaria* bred by some of our local collectors and the moths exhibit a nice range of variation.

Among the butterflies of interest, all three of the large fritillaries occur, *Argynnis aglaia* L. being the rarest of the trio. In Holland's day *Leptidea sinapis* L. and *Nymphalis polychloros* L. were both present where the heathland leads to that delectable spot Pamber Forest. The former butterfly has long since disappeared (The Museum specimens are by W. E. Butler and J. Clarke, 1895), and I have only seen 3 specimens of *polychloros* over a period of 18 years. One of these (24/3/45) was basking on a large sallow bush a stone's throw from the door of the ''Three Firs'' Inn.

Yes, there's still good country south of Reading for productive fieldwork, whether such fieldwork entails daytime sorties over the heather, or evening excursions when there's just that right amount of cloud overhead to herald the approach of a memorable night with the lamp. The advent of m.v. makes collecting so much easier for present-day lepidopterists that one wonders what Holland and Butler would think of the nightly hauls. My guess is that they would welcome such an aid which can so augment local lists and build up so much more completely the distribution picture of a species.

At the same time, I feel that old Holland (from what I have been told of his methods) would still, in spite of high powered lamps, spend his days in trudging over the heaths of Burghfield, searching tree trunks right and left and scorning any man that ''sat down'' to eat his mid-day sandwiches.

[The following note about *E. versicolora* at Burghfield may serve as an addendum to Mr. Baker's interesting paper. On one occasion I went to Burghfield Common to assemble with a ♀ *versicolora*. Just as I had finished tying the assembling cage to a twig overhanging the road a gamekeeper came up and, touching his cap politely, asked me if I was catching moths. I replied that I hoped to, but had only just started.

''Have you got permission, Sir?'' he asked, and when I said I was unaware that permission was required he told me that the Common belonged to Mr. Palmer and that he, the keeper, had instructions to prevent anyone from catching moths there without permission. He then produced from his waistcoat pocket a rather soiled piece of paper on which was written ''Permit Mr. Blank to catch 2 Kentish Glory moths''. This had been issued to ''a gentleman who came here last week'', and it was dated and signed by the landowner.

When I pointed out that I was on the King's highway (or rather the Queen's) and that as long as I remained on the said highway I was —or ought to be—immune from any landowner's attentions, velveteens scratched his head and admitted that this was so.

At this moment up flew a male *versicolora*, which I netted and boxed and showed to the keeper. ''Yes,'' said he, ''that's the kind, Sir. I don't know what I ought to do. I hope you won't get me into trouble.''

Assuring him that this was the last thing I would do I opened the cage and put in the male. Pairing took place immediately, so I was able to tell the keeper that my moth-hunting was over, and we parted good friends, he greatly relieved to see me bicycle off.

Unhappily Mr. Palmer's praiseworthy attempt to preserve *versicolora* failed, and as Mr. Baker relates the moth gradually dwindled to extinction at Burghfield by 1919. That it was "collected out" I doubt: it was certainly not exterminated by collectors at Mildenhall (Suffolk) and in several other localities where the old-time collectors used to take it. More likely it was in the same category as those species which became extinct during the second half of the nineteenth century—species which for a reason unknown to us were unable to adapt themselves adequately to changing climatic conditions.—P.B.M.A.]

Notes from N. Derbyshire, 1954

By T. D. Fearnehough.

The 1954 season will be remembered for its persistently inclement weather and for the resultant general scarcity of butterflies. However, there were a few bright spots. *Callophrys rubi* was in less numbers than usual in its gritstone moorland haunts, and *Celastrina argiolus* was not seen at all in its local headquarters, although thoroughly searched for. This is a species I like rearing, but the obtaining of females and the further obtaining of eggs is by no means an annual accomplishment. Even had eggs been forthcoming I should have had rearing difficulties, for holly berries were very scarce. The larvae will eat tender leaves of holly and ivy, but they do not thrive on such diet.

The first bright spot came in May. Sometime during the previous winter a friend had told me of the existence of dwarf *cardamines* in a certain restricted N. Derbyshire locality. I was rather sceptical, for we have all come across dwarf specimens of the species from time to time. However, on 15th May I was conducted to the spot and during the only sunny interval of the day several dwarf orange-tips were seen and captured. I was unable to visit the locality again until 27th May. The weather was once more unfavourable but a spell of sunshine brought out numerous *cardamines*. They all seemed distinctly small and of the few captured the smallest was 32 mm. in expanse and the largest 39 mm. The locality was a very steep and exposed hillside covered with low herbage, and the orange-tips fluttered here and there in the manner of Blues on the chalk downs of the South. With the too soon disappearance of the sun I turned to looking for the foodplant, and soon found that numerous eggs had been laid on flowering stems of hairy rock cress. Here, I thought, was the explanation of the dwarfs' occurrence, and indeed some plants on which I found eggs seemed too small to offer much hope of complete nourishment for their uninvited guests. In this connection there is an interesting note by Mr. P. H. Holloway in *Ent. Rec.*, **65**: 216.

June was a desolate non-productive month and gave no opportunities for local collecting as my spare time did not coincide with the scraps of good weather. On the 30th a bitterly cold wind impinged upon the hillside at home and the temperature dropped to freezing point. The buds on my rose trees were shrivelled and blown off; many trees turned brown on exposed hillsides and shed their leaves; a bed of nettles was frosted and turned black, and the same fate overtook a mint bed in a neighbour's garden.

July, however, brought another 'bright spot'. I try every year to visit my half-dozen favourite colonies of *Polyommatus icarus* in N. Derbyshire and S. Yorkshire, and in 1954 it seemed at first that *icarus* too had reached a low ebb. To my surprise in one locality there was a wonderful outburst of the Blues and I was able to enjoy a couple of days examining hundreds of specimens. Many of these were of large size and I got several measuring 40 mm. in expanse. These, incidentally, are considerably larger than the dwarf *cardamines* mentioned above. The females showed a fine range of upperside colouring, tempting one to select too many. Several nice underside *obsoleta* forms were taken, one of which has the lunules free from black spots (blind border). I have been unable to find a name for this form. Bright & Leeds refer to a similar form in *L. coridon* as ab. *fowleri*; but surely this name should be applied only to the well known upperside *coridon* variety.

The other colonies of *icarus* visited produced in contrast only small emergences. A feature in these was their lateness. Fresh first-brood specimens were actually emerging during the first half of August. The normal times are late June and early July. One locality produced no *icarus* at all, for it had been devastated by the open-cast coal barbarians.

Maniola jurtina was probably in its normal numbers, but it had a long straggling emergence from early July to the second week in August. One of my favourites, *Lycaena phlaeas*, let me down, for I like to rear it every year from captured females. I saw only five or six specimens through the whole season. In the limestone dales of Derbyshire *Aricia agestis* had a bad year but gave me the third and final 'bright spot'. During a day spent in one of its favourite haunts I saw only half a dozen specimens, but one of these was a lovely fresh obsolete underside similar to the illustration of ab. *calida* in Frohawk's *Varieties of British Butterflies*, Pl. 27, fig. 6.

It might be mentioned that the only thing of note given by August was another weather record, the temperature reaching an alltime low of 35° F. on the 19th of the month. The autumn was disappointing. Second brood whites had thin straggling emergences, and of the Vanessids *urticae* was scarce, *atalanta* was seen twice, and *io* not at all. *P. megera* occurred in very small numbers.

The last butterfly note in my diary was for 18th September, when I wrote, after a day's exploration of the countryside, "Whites almost over, one *atalanta*, one *phlaeas*". Thus ended another bad butterfly year.

Current Notes

It is with great pleasure that we welcome Mr. L. **Parmenter**, F.R.E.S., to our panel of Honorary Consultants. He is known to all our readers, and indeed to all entomologists, as an authority upon the Diptera and has contributed some twenty papers to our pages during the past four years, his Notes on the Asilidae and on the Hover-flies being especially valuable to those who are 'making a beginning' with this Order. His proficiency as a field worker is attested by Colyer and Hammond in their *Flies of the British Isles*—"To Mr. L. Parmenter they are especially indebted for . . . much valuable practical knowledge imparted to them, particularly in the field''. We look forward to printing further papers from his erudite pen.

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*These Notes are by the Assistant Editor.

During the last four years several specimens of a Continental Noctuid, described under the name of *Hydraecia hucherardi* by Mabille (1907), have been taken in Kent and Sussex. In the *Entomologist* for December 1954 (No. 1099) Dr. Kettlewell recounts a visit to Romney Marsh last September to search for the species with the aid of mercury vapour lamps. During eight days over seventy specimens were caught, and pupae were found in the roots of marsh mallow (*Althaea officinalis* Linn.). The size of the specimens is not given, but in wing expanse the insect appears to be midway between *Hydraecia micacea* Esper and *H. petasitis* Doubleday. Dr. Kettlewell remarks that the moth ''shows considerable variation both in regard to ground-colour and degree of markings'' and the Continental authorities are not in agreement as to its specific status. In Seitz's *Supplement* it is said to be conspecific with *H. osseola* Staudinger (1882)—Lhomme (*Cat. des Lép. de France*, I: 732) was also of this opinion—whilst the Spanish *H. murciegoi* Fernandez is closely similar. ''Until a thorough examination of the insects described as *osseola, hucherardi* and *murciegoi* has been made, on the basis of a much larger material than is at present available for comparison'', writes Dr. Kettlewell, ''it seems wiser to treat them as species than to accord them subspecific status that is equally uncertain''—a claim with which perhaps not all our readers may agree.

The Times of 13th January contained an interesting paper by Dr. John Glasspoole headed ''Britain's Wettest Year for over Half a Century''. The rainfall over Great Britain in 1954, wrote Dr. Glasspoole, ''exceeded that of any year since 1903. This is all the more striking because the early months of the year were dry and it was not until the end of May that this general deficiency was made good. The rainfall of the summer three months, June to August, exceeded the average everywhere over England and Wales, but much of Central Scotland and Northern Ireland was drier than usual''. The effects of this disastrous English summer on insect life was of course outside the scope of Dr. Glasspoole's paper, but it would be of great interest if some entomologist could ascertain the effect of this excessive humidity and shortage of sunshine on the different Orders of insects. One thing seems fairly certain—that in view of the soaking which the ground received until the hard weather set in during the second week of January, lepidopterous insects which overwinter in the larval stage (and to a lesser extent in the pupal one) are unlikely to have increased populations in 1955.

'Over-collecting' has been a subject of discussion among lepidopterists for a great many years. It cropped up in the magazines more than a hundred years ago, and in the 'seventies and 'eighties Robert McLachlan, one of the Founders of the *Ent. mon. Mag.* in 1864, was never tired of firing a shot at the 'collectors'. He was firmly convinced that the extinction of every species whose existence in this island was drawing to a natural close during the nineteenth century was due to the rapacity of 'collectors'.

Yet compared with the toll taken of our Lepidoptera by their insect and vertebrate predators (other than Man) it seems plain in the light of our knowledge to-day that the alleged 'depredations' of collectors must in fact be virtually negligible. If it has done nothing else the mercury vapour lamp has shown us how great a 'margin of life' even the rarest species have. It would be possible of course for a collector to 'wipe out' a small colony of a species which has a severely circumscribed habitat and exists only in one locality, provided that he visited the locality every day and caught every individual that emerged throughout the whole period of emergence. And indeed four instances of an attempt at this are known to us. Two of them seem, on the face of it, actually to have resulted in the total extinction of the insect in this country. In the other two cases the species occurred in other localities, so no harm was done beyond eradicating the insect in a particular place. But collectors of this *genre* are, happily, extremely rare. They are in fact aberrations and no harm would come if they themselves were 'collected out'.

A greedy man may catch a hundred imagines of a desirable species in a day, and he justifies himself by the reflection that imagines do not emerge on one day only. There will be plenty more to-morrow . . . But he forgets that to-morrow another greedy man may follow in his footsteps, and perhaps the day after too . . . Still, no harm may be done if the species though local has a large population. A greensman at Royston told us he had once counted seventy butterfly-nets there on a Sunday. Yet *L. coridon* still holds its own on Royston Heath. All the same, it can hardly be doubted that any species which has a severely restricted range in this island, and such small populations as to be accounted of great rarity, is finding (or rather has already found) that its physiological requirements are with difficulty satisfied by the climatic conditions which this country affords. The continued existence of such species in England must depend to some extent on 'preservation'.

Those of us who take pleasure only in the living insect, and therefore do not collect, are inclined to regard this matter from an ethical standpoint: the issue—for us—is not whether 'over-collecting' (we dislike the term and use it only as a convenience) is injurious to the continued existence of a species but whether the destruction in large numbers, for personal gratification, of living things of great beauty, harmless to mankind, is justifiable on moral grounds. And as in all matters of private morals this question must be answered by each man for himself.

A few years ago we were faced by an interesting (albeit unpleasant) problem connected with this matter of collecting. The White Admiral appeared in a certain woodland whence it had been absent within recorded times. This woodland belonged to a public body, and being at that time a member of the committee of custodians charged with the duty of conserving it for the benefit of the public, our particular task was to keep an eye on the fauna and flora, so that these might flourish for the delectation of the many persons who visited the woodland every weekend. During the year after *L. camilla* had arrived the butterfly appeared in moderate numbers; perhaps a dozen would be noticed in the course of an afternoon. The forester was instructed by the committee to request visiting lepidopterists to withhold their nets for the present. But one afternoon five young collectors entered that part of the wood where *camilla* had its stronghold and caught as many as they could. When eventually the forester found them they had taken only five or six each, and surely no one could complain of that. But the total was twenty-seven.

A good many naturalists and nature-lovers visit this woodland every fine weekend throughout the summer, and on one or two occasions letters of appreciation have been received testifying to the pleasure of watching the "splendid butterflies" (*A. paphia* and *A. aglaia* also have now colonised the wood). More often the forester hears similar oral expressions of pleasure. Our problem therefore was whether we should prohibit *all* catching of White Admirals and Fritillaries in order that a hundred or more visitors should enjoy the pleasure of watching these lovely insects, or whether we should allow half a dozen collectors to kill a very modest number each but thereby reduce the scanty population of *L. camilla* by perhaps twenty-seven on a single afternoon. We do not for a moment suggest that these very modest collectors would endanger the existence of the White Admiral in that place: that is not in question. The point is that the collectors, however modest their requirements, would reduce the number of White Admirals which could be watched with pleasure by nature-lovers on any particular day. A minor sequel was the receipt of a letter protesting against the "slaughter" of "these handsome butterflies", the writer having "always thought that the estate was kept up for the benefit of the public" (underlined).

It was quite a problem, was it not? Should the claims of the five collectors prevail over the claims of the nature-lovers? What would you have done in our position as custodian of that woodland? We should value the opinions of our readers on this matter.

Our Treasurer wishes to call the attention of some of our subscribers to his address. Although he removed to Boscombe last July quite a lot of correspondence from subscribers is still being addressed to Southampton. This not only causes delay but the Post Office does not undertake to redirect letters gratuitously for more than six months. Mr. Redgrave's address is printed at the foot of the front cover.

He also wishes to remind those of our subscribers whose copy of this month's *Record* contains an Order Form that their subscriptions are now due. Prompt payment at the beginning of the year saves him a deal of trouble. He is a busy man with little leisure and we are all grateful to him for undertaking this irksome voluntary labour, which takes up so much of his scanty spare time. It is up to all of us to help him to the best of our ability.

The Special Index of Species for last year's volume is now in the press and will be ready shortly. As before, it will be sent only to those of our subscribers who ask for it and enclose a remittance for Two

Shillings. The compilation of this Index is a laborious task and we hope that it will be well supported. It would be a great pity if these Special Indexes (without which the value of the magazine as a work of reference is greatly impaired) had to be abandoned for lack of a demand. But it is a costly thing to produce, and the problem of 'ways and means' is always with us.

Notes on Life-Histories, &c.

The matter of cannibalism in larvae is interesting. It does not seem to be due to original sin but would appear to be a habit induced by the environment which in course of time has become, or is becoming, fixed. It is in fact a phenomenon in the same category as that which gives rise to biological races, wherein larvae adopt a different foodplant from the ancestral one. In his Notes on *Brachionycha sphinx*, printed in this issue, Mr. Symes expresses the opinion that the reputation for cannibalism in that species is largely undeserved, and we ourselves were never able to detect a case of larvacide for which *B. sphinx* could be indicted, nor were we able to induce such conduct artificially. It was always our custom to spray the foodplant (in almost all our larva cages) with rainwater each evening—a custom to which we converted that great rearer of lepidoptera the late Frank Littlewood—and perhaps this daily supply of moisture suppressed any desire for animal food in our caterpillars.

In a paper in this magazine fifty years ago a writer regarded it as significant that all the 'avowed' cannibals—*Polyploca ridens* Fab., *Orthosia miniosa* Schiff., *O. gracilis* Schiff., *Cosmia trapezina* L., *Eupsilia transversa* Hufn., *Amphipyra pyramidea* L., *Graptolitha ornitopus* Hufn., *Lithophane socia* Hufn., *Crocallis elinguaria* L.—feed on oak, and he attributed their cannibalistic propensity to the fact that oaks are so frequently defoliated by Geometers and Tortrices; therefore the cannibalism is due to shortage of food. But this is an over-simplification: however leafy an oak may be one usually fails if one tries to rear *ornitopus, sphinx, socia* and *miniosa* on its hard mature leaves, though all these species are easy to rear on young succulent foliage. At least that has been, often, our own experience. And even if larvae reared on such food pupate, the resulting moths are undersized. With these species in our cages succulent food syringed nightly has always been preferred to 'meat', and the resulting moths have been of normal size.

Cosmia trapezina, and perhaps *Orthosia gracilis*, is of course a confirmed cannibal, and so is *Chilodes maritima* Tausch. Said the writer we are quoting "Mr. Bacot tells me that *C. trapezina*, when forced to subsist on a vegetable diet, is said to emerge undersized, and anyone who has tried to rear a brood of *O. gracilis* will know that, in spite of abundant food, only one specimen, usually a large female, will be bred". True enough, and in these species cannibalism has become a 'fixed habit'. *C. maritima*, inhabiting old tunnels of *Nonagria geminipuncta* Haw., would be hard put to it for food without the small insects and spiders which also inhabit the reeds. In fact "it is difficult to know what else it could eat, as the dried stems of the reeds can scarcely be a satisfactory pabulum, and there is nothing else to be got". And, concludes the writer, "it seems to me therefore that the habit of cannibalism has never in the first instance been acquired by choice, but always as a case of necessity". Which is undoubtedly right.

Most lepidopterists have experienced the urtication caused by the hairs of certain larvae, and the experience is an unpleasant one. Sometimes it is no worse than the 'stinging' of a nettle; but it can be a good deal more severe. It can cause a painful rash which may take several weeks to cure, and if one should be so unlucky as to rub an eye with a finger to which some of the minute hairs adhere the sight of the eye may be endangered. Some persons are hypersensitive to this urtication and may develop a rash merely by brushing out a larva-cage which has contained a brood of hairy caterpillars. Frank Littlewood once told us that he had had a nasty rash on neck and face, which lasted for some time, after cleaning out a cage that had housed *Euproctis similis* Fuess.

That was our opinion until a few years ago: it was only persons who are allergic to these things who are afflicted by them. We were soon to dance to another tune. In a cage which had contained three full-grown larvae of *Lasiocampa quercus* f. *callunae* one of the larvae had 'gone sick' a day or two before the other two pupated. This larva was removed from the cage in the customary way, that is to say it was urged into a spoon and so transferred to the sick bay. As soon as its companions had spun up the cage was brushed out. Within a couple of minutes we became aware of an intense itching on both forearms, and on returning to the house and rolling up sleeves the forearms were found to be covered with ugly red patches of rash, blebs quickly forming. The irritation was intense.

This happened at noon. The arms were at once swabbed with the fifty-fifty chloroform and surgical spirit which one uses for stupefying moths, and at one o'clock they were washed with hot water and toilet soap. That, happily, was the end of the matter: by three o'clock both arms had resumed their normal appearance. Doubtless in the cause of science one arm should have been left untreated, to see how bad the trouble would become; but we are not all cast in the heroic mould. As we had often reared this species previously, and indeed all the other British hairy larvae, without any such untoward happening it seems possible that in this case the hairs had been shed by the sick larva and that, since a healthy Oak Eggar larva does not customarily shed its hairs, there is small risk with this species. All the same it is as well to take precautions when brushing out larva-cages previously occupied by hairy caterpillars. P. B. M. A.

Notes and Observations

THE LAST DAYS OF 1954 AT DORKING.—The 1954 season continued its bad record here to the last, and on few nights in November and December was it worth while switching on the light over my front door. *Poecilocampa populi* and *Erannis defoliaria* were almost non-existent, but considerably more *Colotois pennaria* came than in 1953, and one of them was a pleasing aberration with the cross lines on the forewings very close together, a kink in the inner line just touching the outer. Unexpectedly, a single *Phigalia pedaria* turned up on 19th December. —J. O. T. HOWARD, Dorking, Surrey. 12.i.55.

HERSE CONVOLVULI L. IN SHROPSHIRE.—Having received an invitation to pursue the lusty trout in the Teme at Ludlow on 21st August last, I took my m.v. trap as well as my fishing equipment, and put the trap in my host's garden on the river bank. Next morning I found in the trap what I took to be a female rather worn *Sphinx ligustri*, so put her in a box with privet twigs. Naturally she was greatly offended, and knocked herself about considerably, and refused to lay. Then I realised the distinguished identity.—W. BOWATER, 41 Calthorpe Road, Birmingham, 15.

EMERGENCE OF DASYCHIRA PUDIBUNDA L. AND EUPHYIA LUCTUATA SCHF. DURING THE WINTER.—It might be of interest to place on record some rather unusual emergences during the late autumn and early winter. My emergence cage has been kept in an unheated room and up to the end of 1954 fifteen *D. pudibunda* and one *E. luctuata* have emerged, the majority of them having emerged during December. No doubt the mild weather we have been experiencing has some connection with this phenomenon, but even so the large number of *pudibunda* does, I feel, tend towards there being another factor at work.—M. J. LEECH, The Spinney, Freshfield Road, Formby, Lancs. 11.i.55.

LITHOMOIA SOLIDAGINIS HUB. IN NORTHAMPTONSHIRE.—On 1st September 1954 a single specimen of *L. solidaginis* came to my m.v. light trap here on the borders of Leicestershire and Northamptonshire. This insect, as far as I am aware, had not been recorded for Northamptonshire at all, and not for Leicestershire until Dr. A. A. Lisney and myself found it just before the war in North-west Leicestershire on the edge of Charnwood Forest, thirty miles from here and right in the line of what, up to then, had been its Southern limit in England. I now hear and read that it appeared in several light traps in Kent and Sussex round about September 1st, and in correspondence I have had with Mr. W. L. Rudland and Mr. R. A. French, the question has been raised as to the place of origin of these insects, as the majority of them are undoubtedly immigrants.

There is, of course, the possibility that the specimen taken here had come from the locality thirty miles away, but this is unlikely. On taking my specimen off the boards last week and comparing it with my Leicestershire taken series, it appears to have the dark central band on the forewings rather darker than normal and extending all the way from a line through the reniform stigma to the base of the forewing, whereas the local specimens are definitely banded only and the band is lighter. Further, the hind wings of my specimen are of a paler shade and a colder colour than those of my local series. It appears that it might correspond to ab. *suffusa* Tutt. There is some suggestion that these English light taken samples might be the German form, but I have no accurate knowledge of what the German form is, although I believe it is darker in some way, and it will be interesting if somebody who knows this insect well could throw more light on the subject.—H. A. Buckler, Sutton Bassett, Market Harborough, Leics. 15.i.55.

Herse convolvuli L.: Food-plants, etc.—This note will be too late to save Mr. Pitman's *convolvuli* larvae but may be of use to someone similarly placed in the future. Although the normal food-plant of *convolvuli* in Britain is Convolvulaceae, Bell and Scott in their book on the Indian Sphingidae (*Fauna of British India, Moths,* V) list, in addition to *Convolvulus* spp. and *Ipomaea* spp., *Helianthus* spp. (Compositae) and *Phaseolus* spp., *Dolichus lablab* L. and *Arachis hypogaea* (all Leguminosae). Starving *convolvuli* larvae might, therefore, be induced to eat Sunflower or Runner Bean.

As Mr. Pitman remarks, the eggs of this species are surprisingly small and their blue-green colour is very different from the emerald-green of all the other Sphingid eggs that have passed through my hands at one time or another. I have found this species, both in India and East Africa, generally reluctant to lay in captivity, but occasional females can be quite embarrassingly prolific.—D. G. Sevastopulo, F.R.E.S. Kampala, 6.i.55.

Egg-laying of Butterflies in Close Confinement.—With reference to Mr. Easton's note under this heading (1954, *Entomologist's Record*, **66**: 276) I usually enclose the smaller butterflies, up to the size of, say, *Pieris rapae* or a little larger, in one-pound, screw-topped, glass jam-jars for laying. The butterfly is enclosed with a spray or two of its food-plant and the jar placed on a bright, but not necessarily sunlit, window sill. The butterfly should be fed from time to time with a syrup of honey and water but I have found it better not to put this in the jar as it is apt to get on the butterfly's wings or to produce heavy condensation on the inside of the jar. All the Satyridae tried (*Ypthima, Mycalesis, Lethe, Melanitis* and *Gnophodes*) lay well under these conditions, as do many of the smaller Nymphalidae (*Precis, Argynnis* and *Phalanta*), Acraeidae and those Lycaenidae and Hesperiidae whose food-plants are known. Generally speaking, I have found the Pieridae and Papilionidae the most difficult to induce to lay.

A Japanese correspondent was recently kind enough to give me details of what he terms the "Richards" method of inducing butterflies to lay (I believe it was originally published in the American *Lepidopterists' News* in 1948). All that is required is an ordinary earthenware flower-pot with a drainage hole at the bottom, which is stood over a bowl of water with a few sprays of the food-plant poked through the drainage hole into the water below. The butterfly is kept in the flower-pot by a sheet of glass over the top and the whole is warmed and illuminated by an electric bulb placed above. My correspondent included a thermometer to keep a check on the temperature, but I have found this unnecessary, and he recommended a temperature of around 90° F., but this would probably be too high for British butterflies used to a colder climate. The butterfly should not be exposed to the electric light for too long, say fifteen minutes at a stretch, and should be fed frequently with a syrup of honey and water; my correspondent even recommended adding a little whisky to keep up the butterfly's strength. He also added that he had obtained eggs from most of the rarer

Japanese Swallowtails by using this method and I have found it effective with various species of East African *Papilio,* although an occasional obstinate female is met with which refuses to lay. The method has also worked well with *Catopsilia florella* (Pieridae), a species from which I had always failed to get eggs previously.

I am told that this method will not work if a transparent container is substituted for the flower-pot; apparently the illumination must come only from above if it is to be effective.—D. G. Sevastopulo, F.R.E.S. Kampala, 6.i.55.

A Note from S.W. Hampshire.—Except that I was kept busy with early emergences of *Lasiocampa quercus* L. type and ab. *olivaceo-fasciata*, from Mr. Gordon Smith's Cheshire strain, the earlier part of the year produced little of interest. The eggs hatched between 13th and 20th August, 1953, and throughout the winter the larvae were kept feeding on privet in a warm room, average temperature 60° F. The moths began to emerge on 18th March, and by 29th April 66 had appeared, including 11 ab. *olivaceo-fasciata.*

During this period a number of *Saturnia pavonia* L., some kept in the same warm room and others in a cold north porch, also emerged. These were from larvae taken by me in Radnor Forest. The males were large and lightly marked. On 30th April Mr. H. Symes, Mr. Cue of Ashford and I took two of the females to a New Forest heath to try assembling. Just before 3 p.m. B.s.t. I put the cage containing them amongst the heather. The wind being strong and rather cold we felt doubtful of success. However, males began to arrive almost immediately. They were not in great numbers but about 30 turned up in half-an-hour. I noticed that some of these males presented a striking contrast to those bred from Radnor Forest. They were much darker and more richly coloured. The white area round the 'eye' of the forewings was considerably reduced and in one specimen almost absent. That the New Forest specimens were also smaller was not surprising, as I fed my Radnorshire larvae on apple leaves.

A few *Craniophora ligustri* Schf. from Dorset also emerged in the warm room between 5th March and 1st April, including two ab. *olivacea.*

In April I bred a nice little series of *Cosymbia orbicularia* Hb. from New Forest larvae.

A newcomer to light at Mudeford during this month was *Nothopteryyx carpinata* Bork.

On 18th May I beat in the New Forest imagines of *Drepana binaria* Hufn., *D. cultraria* Fab., *Eilema sororcula* Hufn., *Cosymbia annulata* Schulze, and *Bapta bimaculata* Fab., and larvae of *Asphalia diluta* Schf., *Brachionycha sphinx* Hufn., *Griposia aprilina* L., and *Catocala sponsa* L. On the following day I found a freshly emerged *Hyloicus pinastri* L. on a post at Mudeford. Nothing else worthy of note happened till my Kentish holiday at the end of May, already reported in *Ent. Rec.*, **66**, p. 245.—F. M. B. Carr, Martin's Close, Mudeford, Christchurch, Hants. 13.i.55.

A Note from Cambridgeshire.—I did not do a great deal of collecting last autumn, so an account of the moths which usually occur here would, last year, be chiefly a list of species not seen!

Although not strictly autumnal, I may mention that whilst *Harpyia hermelina* Göze is referred to by Gardiner and Rivers on page 243 of last October's *Record* as a species "not previously encountered" in Cambridgeshire, I have taken the larvae on several occasions in this area—several in fact last year in this parish. Of *Polyploca ridens* Fab. I took two imagos in 1948, also two larvae (ichneumoned); but not since. *Lymantria monacha* L. came to light in the parish this last year in some numbers.

With respect to the Note on page 276 of the November *Record*, I have found *Sarrothripa revayana* Scop. numerous as larvae in the woods round about my parish every year. *Drymonia ruficornis* Hufn. I find occasionally as larvae here, but I have never taken *D. trimacula* Esp. in the parish or county. As an addition to the Victoria County List I can add *Notodonta anceps* Göze (*trepida* Esp.), taken in most years in the parish.

Last autumn there was no sign of *Catocala nupta* L., *Aporophyla lutulenta* Schf., *Tiliacea aurago* Schf. or *Cirrhia gilvago* Schf., all usually to be seen here, though I admit that *lutulenta* has never been at all numerous. I beat a few *Apatele tridens* Schf. larvae in the autumn—a species which I had not seen here previously. *Triphaena interjecta* Hb. did not appear at the Buddleia: it is getting rarer I think.

At sugar I saw a few *Mormo maura* L., also *Antitype flavicincta* Schf.; but there was nothing much at ivy—no *Lithophane semibrunnea* Haw., which is nearly always present. The light trap also produced very little of note. One *Leucoma salicis* L. was taken on 4th August, a species not seen by me previously in the county except at Wicken. A specimen of *N. anceps* Göze was in the trap on 7th June and a *Selenia lunaria* Schf. on 20th June.

I see that *Amathes agathina* Dup. and *A. castanea* Esp. are noted in the Victoria County List as occurring at Newmarket. I wonder if you could tell me whereabouts at Newmarket this would be: I have hunted so far for both these species in vain.—Rev. G. A. FORD, Balsham Rectory, Cambridgeshire. 11.i.55.

A NOTE FROM HEREFORDSHIRE.—The season started badly and there was practically nothing about until the time that the solitary sallow in the garden came into blossom. I trapped over 2,200 moths from this tree, the best of them being half a dozen *G. leucographa* and some very dark forms of *O. gothica*.

The summer was a very poor one, but I added a few species to my 'garden list', including one *D. porcellus*, a couple of *R. sericealis*, one *S. fagi* (trapped on a night in which we had nearly an inch and a half of rain!) and a somewhat shattered *P. interrogationis* (this does not appear in the Hereford or Gloucester lists that I have consulted).

I spent the latter half of September at Tenby and was rather surprised to find *A. vestigialis* still going strong. (I was taking it freely through July at Tenby in '53.) There were a few *A. ochrearia* about. My biggest surprise was the capture of a solitary *A. australis* on 20th September. Whether this is a new record for Wales I do not know, but I always imagined it to be a purely South Coast species.

Upon my return home I found things very quiet, and even 'commoners' appeared scarce—hardly any 'Sallows' about, although I did take one very nice *C. icteritia* ab. *flavescens*.—Rev. R. BENNETT SISSON, Moccas Rectory, Hereford. 15.i.55.

REARING PANAXIA DOMINULA LINN. IN 1954.—Having had no previous experience in breeding this species I cannot say if larval precocity is unusual, but in the summer of 1954 I think it must have been. Out of three small broods of larvae—from different parents—kept in a cold north room until hibernating time, one had about 30 per cent of larvae which continued to feed, and finally pupated, having been kept indoors. During December twelve consecutive females emerged, followed by a solitary male—all typical: a curious sex ratio. A pairing was obtained and eggs laid, many of which failed to hatch although the young larvae were clearly visible in the shell. Emergences took place between 18th and 28th January.—P. J. BURTON, Godshill Wood, Hants. 1.ii.55.

COLEOPTERA

The Attelabidae of Darenth Wood, Kent

By A. A. ALLEN, B.Sc., A.R.C.S.

This one-time paradise of London entomologists, which still produces many good things among the Coleoptera and probably other orders, can claim to its credit, if we include the old records, no less than 17 out of our 18 undoubtedly indigenous species of the above-named family of interesting and often beautiful weevils (and even the remaining one may well occur there). It would, I think, be hard to find another comparably restricted area so close to the metropolis—or, for that matter, anywhere else in the kingdom—which could boast nearly such a high proportion; several of the species being very local.

The Attelabidae, like many other sun-loving beetles, are wary and tend to drop from their foothold on foliage or stem at the least alarm, and even, in bright and hot weather, to take to the wing from the beating-tray with some promptitude. The peak-period for all our species is late May and early June, but this, and still more the frequency of some of them, naturally varies from one season to another. In my experience at Darenth none is localized in any one part of the wood; unless otherwise indicated below, they occur mostly on the young growths of oak, hazel, and birch, wherever there is open copse. Those of the four genera with one or two species in each roll up leaves into cylinders as habitations for their brood, as is well known; whilst our species of *Rhynchites* lay their eggs in the buds, fresh tender shoots, or developing ovaries. It appears that in either case the female punctures or bites into the stem, which reduces the flow of sap so that the affected part withers and falls when the larva is ready to enter the soil for pupation.

Of the 17 Darenth species, I have taken 14 in the Wood within fairly recent years. The choicest is the large and lovely *Byctiscus betulae* L. (*betuleti* F.) with its violet male and gold-green female (the latter sex prevailing), still to be found, but now as a rule only very sparsely, on hazels; the two conspicuous, oddly shaped, long-legged, bright red leaf-rollers, *Apoderus coryli* L. and *Attelabus nitens* Scop., are not rare on hazel and oak respectively—but like the preceding, non-gregarious. The large and very hairy blue *Rhynchites cavifrons* Gyll. is always met with singly; and the similar but smaller *R. ophthalmicus* Steph., which is here of much more common and regular occurrence, though its recorded localities are far less numerous, is noteworthy in being one of our very few (apparently) exclusively British beetles. Of the remainder—mostly smaller species—the rich sky-blue *R. caeruleus* Deg. is occasionally beaten from hawthorn; the pretty scarlet and bronze *R. aequatus* L. frequents the latter tree when in flower and is markedly gregarious, but the greenish-brassy oak-feeding *R. aeneovirens* Marsh., though common enough in many localities, is scarce at Darenth, at least to me; as also is the slender slaty-blue birch-feeding *Deporaus mannerheimi* Hum., whose stouter black congener, *D. betulae* L.—with the male hind femora still more inflated—abounds on the same bushes. The very small and narrow greenish-blue *R. nanus* Payk. is the next most plentiful (if it is not equally so); and the short blackish-blue *R. germanicus* Hbst. occurs on various Rosaceae both woody and herbaceous, but not so commonly as in many other places; odd specimens also are not seldom beaten off young oaks, etc. Of its ally *R. interpunctatus* Steph., a rather uncommon species, one may expect no more than a single example in an average hard day's work, but even this low incidence is often fallen short of; it appears to favour young oaks. Finally, *R. tomentosus* Gyll. (easily passed over in mistake for *R. nanus*, but of a bluer colour and usually found on aspen) seems hardly less infrequent.

Fowler (*Col. Brit. Isl.*, 1891, **5**: 118-128) recorded all the above 14 species from Darenth Wood, except the four commonest for which he did not specify separate localities. The other three recorded also by him are *Byctiscus populi* L. (not unlike a smaller edition of *B. betulae* and equally brilliant), known from elsewhere in N.W. Kent—I took one at Shooters Hill in 1927—and which may well have occurred in former years on the Darenth aspens, now too often overrun with that pest *Formica rufa*; the coppery-purple *Rhynchites cupreus* L., devoted to the mountain-ash, but very rare in the south-east (though common, for instance, in the Hants-Sussex-Surrey border district), recorded from Darenth Wood on the not very secure authority of the celebrated Stephens; and *R. pauxillus* Germ., a rare ally of *interpunctatus*, attached to Rosaceous trees and shrubs, taken many years ago by Champion and, with the last two, sought in vain by Dr. A. M. Massee and myself—this species I think may yet turn up again at Darenth. Even among the few species generally thought to have become extinct in Britain about the middle of the last century or earlier, the two best authenticated, namely the fine large *R. auratus* Scop. and the splendid crimson *R. bacchus* L., are both reputed to have occurred only a few miles away at Crayford, and the latter also at Birch Wood (now, alas! non-existent).

There remains but one species on our list: *R. longiceps* Thoms., confused in this country with *tomentosus* until the late Dr. Joy separated it under the name of *R. harwoodi* in 1911. It is quite possible that Fowler's Darenth record of *tomentosus* really covered both species. Be that as it may, *longiceps* is not unlikely to be found on the sallows there if intensively searched for, as it is rather widespread.*

I regret having to end on a jarring or gloomy note, but should mention that those parts of this classic hunting-ground which have long been open to the collector were privately acquired a few years ago and enclosed for game-preserves. Here it was that most of the rarities which survived into modern times were to be found—the rest of the wood, where coppicing was not practised, having largely become too dense and overgrown. Nevertheless, this unwelcome development may yet amount to a blessing in disguise, for not only should it check the destructive inroads of the local gypsies and other squatters, but the scheme to do away with the entire wood to make room for a new housing estate appears to have been shelved for the present. *Tempora mutantur.*

PYROCHROA COCCINEA (L.) IN MONMOUTHSHIRE.—On 15th June 1954 I took a specimen of *Pyrochroa coccinea* (L.) on nettle at Trelleck, Monmouth. Joy describes the species as very local though the place is within the insect's recorded range.—F. FINCHER, Randan Wood, Woodcote, Bromsgrove, Worcs. 13.i.55.

BYCTISCUS POPULI (L.) IN WORCESTERSHIRE.—On 22nd July 1954 at Monk Wood, near Worcester, I found *Byctiscus populi* (L.) on young aspen. It is described by Joy as very local. This is the second time I have found it, the first occasion, also on young aspen, being at Randan Wood, near Bromsgrove, Worcs., on 29th June 1951.—F. FINCHER, Randan Wood, Woodcote, Bromsgrove, Worcs. 13.i.55.

BOLITOBIUS (=BRYOCHARIS) INCLINANS GRAV. (STAPHYLINIDAE) AT CHIPSTEAD, SURREY.—This conspicuous species is, perhaps, rare enough to warrant a note of its occurrence in the above locality, where, early last August, I came upon a specimen at the roots of an oak in woods on the downs. Published records for the county include Reigate, Wimbledon, and Shere (the first of which is only four miles from Chipstead). I had previously found *B. inclinans* only in Strathspey, Inverness-shire—two examples at different places in July, 1938, in the Aviemore district, under stones. Of *B. cingulatus* Mannh., almost as uncommon, I took one in a rotten stump in the autumn of 1944 at Waltham Abbey, South Essex—not far from Epping Forest, a known locality of both species. Even the generally distributed *B. analis* Payk. seems to be very sporadic.—A. A. ALLEN, 63 Blackheath Park, S.E.3. 12.i.55.

DIPTERA

Leopoldius signatus Wied (Conopidae) in Somerset

By E. C. M. D'ASSIS-FONSECA, F.R.E.S.

Owing to the very mild autumn of 1954 a number of interesting "late" species were in evidence, and among these may be listed the comparatively rare Conopid *Leopoldius signatus* Wied. Along a half-mile stretch of ivy-covered wall at Failand (Som.) nine males and eight females of this species were taken on 12th and 17th October. The ivy-blossom was in perfect condition and attracting a great multitude of insects of all kinds, of which the common wasp formed a considerable proportion. It is a remarkable fact, however, that whereas all the other insects appeared to be concerned only in the extraction of nectar from the flowers, the *Leopoldius* were never once seen to settle *on* the blossoms. Just as in the writer's previous experience of *L. signatus* (1952, *Ent. Rec.*, **64**: 186-7), when a few specimens were taken on Bramble leaves *below* ivy-blossom at Henbury (Glos.), the Failand specimens were without exception resting on the ivy leaves well below the level of the flowers. There is no doubt that the species is attracted to flowering ivy in mild autumn weather, as there have been several records of its occurrence on ivy in recent years, but since it does not appear to be interested in the nectar which claims the attentions of so many other insects, one is led to the conclusion that it is attracted by the wasps on which it is parasitic. This explanation had occurred to the writer on the second date on which the Failand captures were made, and when a fairly good series of each sex had been secured, it was decided that the next few specimens seen should be kept under observation in the hope that some evidence might be obtained. Careful observation of three specimens (2 males and a female), however, produced nothing conclusive. The two males moved their position several times without apparent reason before finally flying off too far to be followed, always re-settling on leaves well below the flower-belt. The female remained in the position in which she was first seen for about twenty minutes, and was only dislodged by the blunderings of an apparently tipsy wasp and thus lost sight of. No further observation was possible owing to the weather clouding up and the consequent disappearance of most of the insects.

CERATITIS CAPITATA WIED. (TRYPETIDAE) IN SOUTH LONDON.—Collin (1947, *Ent. Rec.*, Suppl. 1-14) records the Mediterranean fruit fly, *Ceratitis capitata* Wied., as occasionally rearing a brood in this country, and Colyer and Hammond (1951, *Flies of the British Isles*) record an adult of this species from a north London park. Some imported apricots bought in Forest Hill, London, S.E.23, in late June 1953 contained larvae of *Ceratitis capitata*, and three males and one female emerged from the apricots on 27th July 1953. The apricots were kept in a jar in an unheated room, and the jar was left uncovered up to 8th July. The decomposing apricots attracted *Psychoda cinerea* Banks, and adults of this species began to emerge on 27th July (19 ♂♂, 6 ♀♀), and continued to emerge until the 29th (3 ♂♂, 17♀♀). Psychodid larvae again appeared in the jar on 9th August and a second emergence commenced on the 20th and continued until 26th August 1953.

Satchell (1947, *Parasitology*, **38**: 51-69) records larvae of *P. cinerea* from sewage beds, a mud flat, and household drains. Apparently this species will breed in a wide variety of moist situations and will also continue to breed in the same environment. In this *P. cinerea* resembles *P. severini parthenogenetica* Tonnoir which also breeds in a wide variety of habitats (Satchell, 1947) and which will continue to produce a number of generations in a jar full of old cow dung. These catholic habits are in contrast to the habits of *P. phalaenoides* L., the females of which apparently will only oviposit in fresh cow dung and which can only rarely be found ovipositing in dung more than 48 hours old. The larvae of *P. phalaenoides* develop very rapidly in the fresh cow dung, and in June in shaded pats may be mature within 7 days, and adults have emerged within eleven days.

In addition to the habitats given by Satchell for the larvae of *P. severini* I have bred this species in the spring at Rothamsted, Herts., in company with *P. albipennis* Zett. and *P. trinodulosa* Tonnoir, from rabbit dung lying on the tops of some felled tree stumps.—B. R. LAURENCE, 4 Princes Garth, London, S.E.23.

ORTHOPTERA

ORTHOPTERA AND DERMAPTERA IN WORCESTERSHIRE.—Since my previous notes on Orthoptera and Dermaptera in the West Midlands (*Ent. Rec.*, **65**: 151-154) one new and two additional occurrences from Worcestershire have been noted.

Tetrix subulata (L.). Apart from Glamorganshire this species does not seem to have been reported north of a line from Gloucestershire to Huntingdonshire. Its occurrence on Castlemorton Common near Malvern therefore extends the known range of this insect. It seemed fairly common on wet and waterlogged ground bordering a small stream on 3rd June 1954.

Meconema thalassinum (Degeer). One taken at light at Wribbenhall, Bewdley, on 2nd October 1954.

Labia minor (L.). One taken at light, also at Wribbenhall, on 1st October 1954. This appears to be only the second record for Worcestershire. These two occurrences were noted by R. J. Spittle who submitted the specimen to me.—F. FINCHER, Randan Wood, Woodcote, Bromsgrove, Worcs. 13.i.55.

Fifty Years Ago

(From *The Entomologist's Record* of 1905)

A NOTE FROM CANNOCK CHASE.—A thoroughly bad season has been that of 1904. Early spring insects such as *Asphalia flavicornis* and *Brephos parthenias* were scarcer than usual, and, although *Callophrys rubi* and *Hadena glauca*, being commoner than I have seen them for some time, gave promise of better things, cold nights in June made sugar a total failure. On one night I got a few *Hadena glauca*, *H. contigua*, *H. adusta* and *Acronycta menyanthidis*, but for the rest of the season on no one night did I get more than three takeable insects. The long drought and abundance of honeydew in July and cold east winds in August being no doubt answerable. I got a few *Stilbia anomala* during the first fortnight in August, but only three *Noctua castanea* . . . I also got two *Cirrhoedia xerampelina* and had a much battered *Agrius convolvuli* brought to me in September . . . Autumnal larva-beating was a complete failure.—RICHARD FREER, M.D., Rugeley.

CROSS-PAIRING OF TAENIOCAMPA GOTHICA AND T. STABILIS.—Six weeks ago, shaking sallow for *Taeniocampids*, I took *Taeniocampa gothica* ♂ and *T. stabilis* ♀ paired; a few days later the female deposited ova, and a week ago the larvae emerged and are now feeding, some upon sallow and others upon elm, and appear to be thriving. I do not know if this is an uncommon occurrence or not, but I can hear of no one with a similar experience. It seems to me, however, that it cannot be at all common. The night I took them *T. gothica* and *T. stabilis* swarmed.

they were all over us after each shake, and flying in all directions, so that there were plenty of ♀ *T. gothica* that the male might have mated with. I was advised to state the facts to you, as at least interesting, and if you (or your readers) are able to give me any information of similar cross-pairings I shall be very grateful. *T. stabilis* this year has been more varied in form than I have ever known it before.—H. W. WEAVING, Abingdon.

COLEOPTERA AT MARKET BOSWORTH.—In July, I went to Market Bosworth to pay a visit to my friend Mr. Bouskell, and to try and take *Tetropium castaneum*, the new British longicorne, discovered by him last year. The object of the trip was successfully carried out, the *Tetropium* being taken as soon as the tree, a tall spruce, was reached. Several specimens were secured (my share being a nice ♂ and ♀), and larvae, pupae, and an ichneumon (which Mr. Morley informs me is new to science) parasitic on the beetle were also found. A very high ladder was used to reach the higher parts of the tree, and it is by no means a pleasant job standing on the top rungs whilst both hands are being used to chip at the bark of the tree! The next best capture was over a dozen specimens of *Abdera 4-fasciata*, taken from a stack of oak-logs. This rare beetle is a new record for Leicestershire. *Dorcatoma chrysomelina* was found in great profusion in a rotten oak-tree on the ground. *Evaesthetus scaber* was taken under moss by the side of the canal when we were bathing; and some days after I had left Mr. Bouskell took *Pediacus dermestoides* under bark. These last two species are both new to the county list.—HORACE DONISTHORPE.

Current Literature

ENTOMOLOGISCHE BERICHTEN. *December 1954.* Page 271: "New Forms of Dutch Butterflies" by H. J. L. T. Stammeshaus (in English), describing aberrations of *Pieris rapae* L., *P. napi* L., *Vanessa atalanta* L. and *Lasiommata* (*Pararge*) *megera* L. named by the writer. *January 1955.* Page 274: "Additional Note on the giant Elaterid *Oxynopterus mucronatus* Ol., a predator of termites in Java", illustrated, by L. G. E. Kalshoven (in English); page 286: New and Rare Lepidoptera in 1953 by G. A. Bentinck (in Dutch); page 287: Macrolepidoptera in 1953 by T. H. Van Wisselingh (in Dutch), being an account of some of the Netherlands moths, mostly rare, with dates of capture, additional generations, etc.; page 289: a Note of the discovery of the Trypetid fly *Euaresta* (*Heringina*) *guttata* Fallen in South Limburg, by W. J. Kabos (in Dutch); page 291: "On Some Ant Types of Fabricius" by J. G. Betrem (in English), the types discussed being *Formica rufa*, *F. fusca*, *F. truncorum*, *F. obsoleta*, *F. rufibarbis*, *F. flava* and *F. acervorum*; page 294: the Problem of the Terminology used in describing the genitalia of Lepidoptera, by A. Diakonoff. To put an end to the existing confusion of this terminology the writer suggests (1) use of Latin or Greek terms only, (2) rejection of a rule of priority for the choice of terms, (3) general use of Pierce's terms, (4) certain minor structures should be indicated by a collective term only and not each of them denoted by a special arbitrary term.

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Does *Erebia epiphron* Knoch still exist in Ireland ?

By Raymond F. Haynes.

From time to time we read in entomological journals speculative articles regarding the fate of local and rare species, which are believed to have become extinct in Britain in the late 19th or early 20th century. Owing, no doubt, to the dearth of Irish collectors, we hear but little of the status of rare species in the sister island and were it not for the fact that certain British entomologists are prepared each year to make collecting trips to Erin's green isle, our knowledge of Irish lepidoptera would be very scanty.

Recently Messrs. L. Christie and J. F. D. Frazer appealed for information concerning the habits and distribution of the Mountain Ringlet butterfly in Great Britain and Ireland. As interest in this species seems to have been renewed, the present time seems to me opportune to take stock of what little is known about the Irish localities and try to determine the possibility of a reappearance.

From the meagre data available in existing publications, we can recapitulate the story of the Irish *Erebia* as follows. We owe its discovery in Ireland to Mr. Edwin Birchall who from all accounts seems to have been a person of means and leisure. This fortunate individual used to make long collecting trips to the south and west of Ireland about 1860. It speaks volumes for Birchall's keen collecting ardour that he was instrumental in recording such a long list of Irish species, although some of his records now seem exaggerated. It has to be remembered that public transport in Ireland at that time was very primitive and apart from railways virtually no road vehicles existed, so that it is surprising that Birchall managed to cover so much ground in remote country. We read from Birchall's contributions to the *Entomologist's Monthly Magazine* his brief account of his discovery of *E. epiphron* as follows:—"Croagh Patrick near Westport, Mayo. The locality for this species is about half-way up the mountain on the Westport side, in a grassy hollow, where a little hut is erected for pilgrims. I captured a fine series here in June 1854". By what streak of good fortune did Birchall select one of the very few mountains in Ireland on which *E. epiphron* occurred, when hitherto the butterfly was not known to exist? Was it by chance or only after other mountains had been explored?

The next entomologist to appear in the picture was the famous W. F. De Vismes Kane, whose papers on Irish lepidoptera in *The Entomologist* were published in a single volume in 1901. In his Catalogue we find the following reference to *E. epiphron*: having quoted Birchall's record (above) he goes on to say: "I have seen no Irish specimens, nor have I heard that any visit to the above locality has been made since for the purpose. It would seem probable that other habitats may be found for the species on the range of mountains extending from Achill towards Nephin. Were it not that the alpine flora and entomological fauna have not usually, so I understand, a parallel distribution in Ireland, we might expect that the heights of Slieve League, Benbulben and Mount Brandon would reward an entomologist by interesting discoveries in this direction".

After these speculations Kane was fortunate in finding another height on which the butterfly occurred; as in the Supplementary List at the end of his Catalogue there is this reference:—"Since writing my notice of this butterfly, and suggesting that the mountain range from Achill to Nephin might very probably yield habitats, I have been fortunate enough to meet with a few specimens on Nephin. The bad weather and subsequent engagements have prevented my investigating the locality further. One specimen, in a collection of the Rev. R. McClean is believed to have been taken on the hilly slopes on the eastern shores of Lough Gill, Sligo".

Finally, Lt.-Col. Donovan in his Catalogue of the Macro-Lepidoptera of Ireland gives us just about the sum total of all that is known. After quoting Birchall's and Kane's records, he continues thus:—"No recent records. The following six are in the National Museum, Dublin; one labelled 'Croagh Patrick', Featherstonehaugh Coll.; one labelled 'Sligo, M'Clean'; one Co. Mayo, E. Birchall; three labelled 'Kane Coll.' no localities. Mr. Dudley Westropp informs me he possesses one labelled 'E. Birchall', which he got from Thornhill, but is uncertain of the exact locality. There are no samples of Kane's Mount Nephin Erebias in the National Museum, Dublin. Sir Charles Langham searched Mount Nephin and Croagh Patrick on two occasions but saw no trace of the butterfly. I have looked for this *Erebia* on the south and south-west side of Mt. Nephin on a suitable day, 1st July 1934, from 1000 feet to 1300 feet, but detected no signs of its presence. This part of the mountain appeared most unsuitable, no streams or moisture, with a thin superficial turf of heather scattered over extensive patches of bare quartzite rock. Kane evidently must have tried the northern aspect. I made two attempts on Croag Patrick: the first time, 1st July 1931; the day was hopeless, misty, raining and with a strong wind blowing. The second essay, 27th June 1935; the day was promising, and, notwithstanding a most careful scrutiny by four experienced nets of Birchall's grassy hollow near the little hut, there were no indications whatsoever of the elusive *cassiope*. I believe there is a cycle of two years in the emergence of the imagines of the species and perhaps I was unfortunate in not choosing the correct year".

Does it not seem strange that apart from these few abortive attempts nothing has been done to confirm the old records? I think we can safely discount the remote chance that someone has taken the insect and not recorded the fact. No doubt dull unsettled weather, so prevalent in the west of Ireland, is largely responsible.

During last summer I was informed that a lepidopterist went to Eire to investigate. I believe he tried Croagh Patrick and other mountains in County Donegal without the slightest success. The appalling weather of early July militated against any serious attempts. Later, during the period July 18th-31st I spent my holiday in the north of Ireland and stayed at Enniskillen for the first week. Deciding that as I was fairly near to Sligo I might as well pay the district a visit, I carefully scrutinised an ordnance survey map; but here I was up against a snag. The Sligo specimen is *believed* (italics mine) to have been taken on the hilly slopes on the eastern shore of L. Gill. The eastern shore of that lake is, in fact, in Co. Leitrim and, furthermore, the so-called "hilly slopes" barely attain a height anywhere of 1,300 feet, which is surely not a high enough elevation for the insect. However, there did appear to be one likely mountain called Benbo, 1,370 feet. This entailed a journey from Enniskillen to Manorhamilton, where I was obliged to stay overnight on account of the paucity of the train service. Arriving about 1.30 p.m. on July 19th I quickly found accommodation and then set out for Benbo. The climb was not over strenuous but the atmosphere was close and humid, and a swarm of sweat flies lying in wait on the mountain side made the ascent rather unpleasant. At the summit, conditions seemed not unsuitable: plenty of grass and other vegetation and innumerable bog pools. A dark, gloomy lakelet known as Black Lough covers a fair area. There was no sun that afternoon, so I paid a second visit the following day. On this occasion I was rewarded with a good thirty minutes of bright sunshine at the summit but saw no sign of the *Erebia*. Probably I was too late in any case.

If all goes well this coming summer I hope to take my holidays during the first fortnight in July, and I am seriously contemplating making an 'all-out' effort to track down the butterfly. For this purpose my best plan is surely to stay a week in Co. Mayo at a spot not too far away from both Croagh Patrick and Nephin. Probably the town of Westport would offer advantages—always, of course, allowing for moderately settled weather. In May 1950 I spent a week's holiday at Ballina in North Mayo and, Nephin not too far away, I took the opportunity offered of making a survey of the place. I ascended from the southern aspect and fully concur with Donovan that this face of the mountain appears an unlikely habitat for the butterfly. Later I heard a disturbing rumour (not confirmed) from Mr. Stelfox, late of the Dublin Natural History Museum. This naturalist told me that he had heard from some source that some years ago the whole mountain side caught fire after a drought. If this report is true, then all hopes of the *Erebia* still being there are dashed. However, examination of an ordnance survey map of the area reveals that there are similar peaks in the neighbourhood over 2,000 feet high which have probably never been investigated by entomologists.

Regarding the Croagh Patrick record, Birchall stated that he caught the butterfly half-way up on the Westport side near the shelter erected for pilgrims. Croagh Patrick is Ireland's Holy Mountain. Annually on the last Sunday in July thousands of devout Catholics from all parts make a special pilgrimage up the mountain to hear Mass, held at dawn. Were it not for the fact that this pilgrimage has been carried on from time immemorial I might be inclined to suppose that the feet of countless worshippers had so trodden over the ground as to render it unfit for the survival of the insect.

In conclusion, my reply to the question: "Does *E. epiphron* still exist in Ireland?" would be: "In all probability, yes, as local conditions do not seem to have changed to any great extent from the time when the original discoveries were made". I would qualify this answer, however, by saying that if its present whereabouts are to be discovered, we must take a leaf out of the books of those early pioneers Birchall and Kane and, in spite of some discomfort, try some other mountains in the hope that this elusive little "brown" will at last yield the secret of its hide-out.

Sterrha serpentata Hufnagel in England

By P. B. M. Allan.

Samuel Stevens, who was born in 1817 and at one time partnered his brother in the famous auction-room at Covent Garden, occupied himself with fishing, painting in water-colours, and collecting beetles as well as butterflies and moths. He died in 1899 at the age of eighty-two, being then the doyen of the Victorian lepidopterists.

Some time between 1845 and 1850—I have not noted the exact year though doubtless it is written on the labels of certain specimens I am about to mention—taking a holiday at Southend-on-Sea, accompanied by his butterfly-net, Samuel caught a number of small tawny Geometrid moths which he had not previously taken. They were flitting about, in the daytime, over a small patch of ground on which probably they had been bred. There was quite a number of them, and Sam took a reasonable series.

These moths were later identified by Henry Doubleday as the *Acidalia perochraria* of Freyer, this being the name which Freyer had given to a variety of *Acidalia ochrearia* Hübner. The moth was quite common in several spots at and around Southend, and subsequently Stevens's friends found that it occurred for many miles northwards along the Essex coast to, at least, St. Osyth and probably further north still. Later it was found to exist in considerable numbers on the coast of Kent, near Deal and Sandown, and—said Barrett, writing in 1902—"although incessantly harassed by collectors, and almost trampled out of existence by excursionists, it still, I believe, maintains a precarious existence in that locality".

Now, in his *Abbildung*, &c., published in two volumes at Leipzig, 1834 and 1843, Fischer von Röslerstamm described a Geometrid resembling the insect under discussion and called his species *perochraria*; but some time in the 'fifties Achille Guenée, the lawyer-lepidopterist of Chateaudun, acquired some of the Southend Acidalias and saw at once that they differed from the insects named *perochraria* by Fischer which were already in his collection and that they strongly resembled his specimens of *Acidalia ochrata* Scopoli. They were it is true smaller than the *ochrata* in his cabinet and the same size as v. Röslerstamm's insect, but there the resemblance ended. Further examination showed that there were very decisive differences between his *perochraria* and the English moths, differences which proved that the Southend insects could not possibly be the *perochraria* of Fischer v. Röslerstamm. The antenna of *perochraria* has black-brown pectinations whereas on that of *ochrata* the pectinations are scarcely darker than the pale ochreous yellow of the flagellum itself. Moreover there is a notable morphological difference in the tibiae of the hind legs of the two species, these structures in *perochraria* being entirely destitute of spurs. Plainly, then, these moths which the English were taking in some quantity on the Essex coast were not, as they believed, *perochraria* but were in fact *ochrata* Scopoli.

Guenée lost no time in sending this information to his English correspondents (the chief of whom at that time were Henry Doubleday and H. T. Stainton), and reference to v. Röslerstamm's book, a copy of which Stainton possessed, showed quite plainly that Guenée's contention was correct. Stainton therefore described the Southend species under the name *ochrata* in the instalment of his *Manual* issued in 1857 (page 45), giving Doubleday's attribution of the species to *perochraria* (in Doubleday's *Synonymic List*) in his appendix (page 449). The name-labels in the more important collections were changed, and Newman abandoned *perochraria* altogether in his *Illustrated Natural History of British Moths*, 1868.

In 1865 Sydney Webb of Redhill, Surrey, a well-known collector, caught a small tawny Geometrid moth in a quarry at Redhill which differed somewhat from the Southend moths. Beyond pointing out the insect to various persons who came to inspect his collection he does not appear to have taken any steps to identify it; or if he did those whom he consulted were unable to decide upon a definite identification. Four years later, on 4th August 1869, a Mr. Walter Weston who was staying with Webb caught a second specimen of the same insect in the same place, and some time in the succeeding year Weston sent or handed his moth to a young collector named Vaughan who was also a friend of Webb. One of the editors of *Ent. mon. Mag.*, Dr. H. Guard Knaggs, lived not far from Vaughan's home in North London (Vaughan, then aged 24, had been admitted a solicitor the previous year) and Knaggs himself already possessed two specimens of an insect which were, apparently, identical with the insect taken at Redhill, and he gave one of these to Vaughan. As Knaggs was at that time chary of committing himself on the matter of the identity of these insects, young Vaughan impetuously rushed into print with a Note, which appeared in Knaggs' magazine in November 1870 (**7**: 138), boldly asserting "This Acidalia is, in my opinion, the true *ochrata* of Scopoli" which was "a species new to our list". The Note was as follows:—

"*Occurrence in Britain of Acidalia ochrata, Scop., a species new to our list.*—A short time since, Mr. Walter Weston placed in my hands for identification an *Acidalia* captured by himself near Red Hill, Surrey, on August 4th, 1869, and subsequently Mr. Sydney Webb, of Red Hill, has shown me a specimen of the same species which he also had captured in the previously mentioned locality in 1865. This *Acidalia* is, in my opinion, the true *ochrata* of Scopoli. Dr. Knaggs informs he that he has long looked upon this species as an inhabitant of Britain, and some time ago kindly gave me an example which, to judge by the setting, is undoubtedly British, although he was unable to furnish me with the locality in which it had been captured".

This Note might have been, to those who knew more about Lepidoptera than Vaughan did, only of passing interest as showing that a specimen or two of a coastal species had wandered inland; but it had a high nuisance value. Why Stainton who was on the editorial board of the *Ent. mon. Mag.* passed it for press one can only surmise. Perhaps he was on one of his visits to Germany at the time and never saw it until it appeared in print. It seems unlikely that had he been aware of it he would have allowed it to appear without adding an editorial comment.

However, the following year (1871) Knaggs dealt with these insects in the pages of Stainton's *Entomologist's Annual* and had something to say about the two specimens which he had acquired prior to the captures at Redhill. After describing Guenée's distinctions he went on to say "Some ten years ago I received from my friend Mr. Birchall two examples of this wave as *ochrata*; these struck me as being quite distinct from the *ochrata* of our cabinets, and I at once forwarded them to my friend Mr. Doubleday, who, while admitting their distinctness, said that nothing could be done without a full authentic account of their capture. This I was unable to obtain. Mr. Birchall could state nothing more definite than that "he believed he bought them of Harding"—and here the matter dropped. These specimens, however, remained separated from *ochrata* in my collection up to the time that I disposed of it, when I gave one of the examples to my friend Mr. Vaughan, at the same time telling him that it would be sure to turn up some day as a species new to us—my ground for believing this was their unmistakable British set, gilt No. 10 pins, if I rightly remember, having been used for the purpose . . . "

Knaggs then printed (*ibidem*) Fischer von Röslerstamm's descriptions of both *perochraria* and *ochrata* and his summary of the differences between the two species—in a translation furnished by Stainton.

This, so far as I have been able to discover, was the last word to be said, or rather written, about the insects caught by Sam Stevens at Southend and the insects taken by Webb and Weston at Redhill, until April 1896, when a Note appeared in *Ent. Rec.* (**7**: 313) to the effect that at the sale of the Fry collection the previous March a 'lot' consisting of two specimens of *Acidalia straminata* var. *circellata* and two specimens of *A. perochraria* produced 32s. 6d., "the latter not the original specimens of Weston". A further Note on page 317 of the same issue stated that Lot 104 contained one specimen and Lot 105 two specimens. "There are, presumably, only Weston's two, supposed to be British. Are these Weston's? If not, whose are they?"

[Apparently Webb's specimen passed into the possession of his friend Weston, for Weston is spoken of subsequently as possessing *two* specimens. There was no mention of the insect in the accounts of the sale of the Webb collections, given by *Ent. Rec.* and *Entom.*, in 1920. If any reader of the *Record* possesses a copy of the sale catalogue perhaps he will tell us if a specimen of *A. perochraria* is mentioned therein.]

These remarks called forth a Note in the same magazine (**8**: 87-88) in June from C. A. Briggs, who stigmatised them as "a singular mistake . . . twice repeated . . . It would perhaps be as well to put the matter straight once and for all". He then specified the two Redhill insects, one caught by Webb the other by Weston, mentioned that the so-called "Weston" specimen sold at the Burney sale was a fraud, and that "other specimens occasionally turn up at Stevens' in big collections" and "must, I am afraid, be regarded as of questionable authenticity". He then went on to refer to the Birchall specimens in the possession of Dr. Knaggs as "apparently genuine, but with no titles". Nothing at all was said about the Southend moths, for by this time it had been decided they were *ochrata*. Indeed in 1902 Barrett (*Lep. Br. Is.*) described the Redhill insects as *perochraria* and the Southend ones as *ochrata*.

But what of the Birchall specimens, two of which he gave to Knaggs? He "believed he bought them of Harding". Where did Harding catch —or obtain—them? I hold no brief for Edwin Birchall and as for

Harding, who was born in the first decade of the nineteenth century, he flourished in the palmy days when Continental specimens of 'rarities' were imported by the boxful for sale in England as "genuine British specimens". But I know nothing to Harding's prejudice. The two moths (Birchall may have had more—it seems unlikely that he would have given away the only ones he possessed) which came into Knaggs's possession may well have been caught by Harding himself, who was a field worker first and foremost and an industrious one at that. Does anybody know where these Harding-Birchall-Knaggs specimens are to-day? It is possible, of course, that Birchall's memory may have deceived him and that Harding had nothing at all to do with the Knaggsian moths; perhaps Barrett was wise to ignore their existence: he may have known more about them than I have been able to discover. But there can be no doubt that they were not the species first caught by Sam Stevens at Southend: they were different, *teste* Knaggs, from *ochrata*—"quite distinct from the *ochrata* of our cabinets". Were they in fact the *serpentata* of Hufnagel, as we must now call the species named *perochraria* by Fischer von Röslerstamm? The morphological differences between *ochrata* and *serpentata*, noted by Guenée and quoted just now, would settle the matter if they could be found. Did they too come from that quarry at Redhill? If they did the insect must have been breeding there for a good many more than the four years between the captures of Webb and Weston.

The two Redhill moths are now at Tring. In a letter to me a year or so ago Dr. Cockayne wrote: "I think the synonomy is: *serpentata* Hufnagel, *Berl. Mag.*, 1767, 4, 612 = *similata* Thunberg, *Diss. Ent.*, 1791, 2, 10 = *ochrearia* Duponchel, *Pap. Fr.*, 1830, 8, 1, 76, Pl. 175, f. 3 =*perochraria* Fischer v. Rösl., 1838, 46, 125, Pl. 49, figs. a-g. This species is larger and brighter than *S. ochrata* ssp. *cantiata* Prout, which occurs on the coast of Kent and Norfolk and formerly Essex".

Yet *serpentata* is one of the very last insects one would expect to find in a quarry at Redhill. L'homme (*Cat. des. Lép. de Fr.*) notes that whilst *ochrata* is a herbivore, *serpentata*—which inhabits "surtout régions montagneuses"—is graminivorous, though in captivity it will eat docks, sow-thistle and bedstraw. A quarry at Redhill seems a remarkable habitat for a mountain species having for its foodplant a hill grass (*Festuca longifolia* Thuill.). Yet it occurs in Denmark, though "only known from East Jutland . . . often common where it occurs" (Hoffmeyer: *De Danske Stors.*, 1938, p. 212). Were the Redhill specimens accidentally imported, by a neighbouring nurseryman, with alpine plants? Or were they the last survivors of a relict from pre-glacial times? At all events there seems to be no reason, after the lapse of so many years, to suppose that *Sterrha serpentata* still occurs in Surrey—or anywhere else in this island.

Notes on Collecting in the Isle of Wight

By S. Wakely.

From 7th to 14th August, 1954, I was on holiday in the Island and it is hoped that the following notes on some of the more interesting species of lepidoptera, etc., will be of interest to readers.

On 8th August, I met my old friend Mr. J. Lobb (one of the few resident entomologists in the Island) at Sandown and we proceeded together to St. Helens, making our way to the sand dunes. Pupae of *Nephopteryx genistella* Dup. were one of the first things to attract our attention. The larval webs were easily found among gorse, but it was a painful and tedious job extricating the silken tubes in which the larvae had pupated. These webs, situated on the older growths, could easily be mistaken for spider webs; indeed spiders (and their egg clusters) were often found with the *genistella* webs, apparently neither interfering with the others. Not having taken the moth previously at this particular locality I brought a few back with me, but far more parasites than moths emerged. The next species of note met with was *Platyedra vilella* Zell., the larvae of which we found among the flowers and seeds of the Common Mallow (*Malva sylvestris*). The larvae are rather difficult to find, but on finding one, a small bag was filled with the seeds and flowers, and subsequently a number of this local moth were bred. The greenish larva is peculiar in that the first two or three segments are tinted pink as if the fore part of the larva had been dipped in a bright dye. Some interesing plants were found including the Autumnal Squill (*Scilla autumnalis*) which was quite common. A few patches of *Thesium humifusum* were seen and searched in vain for larvae of the rare micro attached to this local plant. Several species of sand wasp were noted, one specimen of *Ammophila sabulosa* L. being seen dragging a large Noctuid larva over the sand. The larva was obviously stung, but remained alive with occasional slight movements for about a fortnight, and ejected excrement at long intervals for some days. A specimen of *A. viatica* L. was also taken. At one spot on the dunes we saw a number of large brightly-coloured yellow and black wasps, rather skittish and difficult to approach, one of which was carrying a common bee (*Apis mellifera* L.) as prey. Five specimens were netted. These were later identified as *Philanthus triangulum* F., quite a rare species and notorious for being a predator on the honey bee. *P. triangulum* was recorded from Sandown Bay in numbers in the year 1951. "Not since recorded" (Morey's *Guide to the Nat. Hist. of the I.W.*). There are old records from Hants, Surrey, etc., but the only recent record seems to be one by Blair, who reported finding a small colony near Totland Bay on 12th August 1948 (*Ent. mon. Mag.*, Oct. 1948). I am indebted to Mr. Yarrow at the British Museum for verifying this species. After seeing photographs of the St. Helens district taken at the end of November during the tidal flooding one could not help wondering what effect it could have on the insect life in this locality.

On the 10th I visited the opposite end of the Island, about 24 miles westwards. I was anxious to see if *Alucita spilodactyla* Curt. still occurred at Freshwater, and was pleased to find it quite flourishing. Larvae, pupae and the moth itself were all found on the *Marrubium vulgare* growing on the chalk downs westwards from Freshwater Bay. The larvae of *A. spilodactyla* may be found on the upper surface of the leaves—usually along the centre rib. Pupation takes place in the same situation, and if empty pupae cases were noticed the moths were invariably found at the base of the plant which they were very loath to leave. This is no doubt due to the windswept locality at the top of the downs where they occur—often near the edge of cliffs 200 ft.

high! Agromyzid mines were also noted on this plant and later passed on to Mr. K. A. Spencer who determined the species as *Phytobia morionella* (Zett.), a species not hitherto recorded for Britain. Numbers of a small beetle were also seen on the *Marrubium* and a few taken were later identified by Mr. F. J. Coulson as *Meligethes nanus* Erich. This species is very local and is described at length by Mr. A. M. Easton in the *Ent. mon. Mag.* for February 1950. This is another locality record for this beetle, although it has been previously reported from Compton Down which lies east of Freshwater (*Ent. mon. Mag.*, December 1951, p. 319). Three specimens of the beetle *Cteniopus sulphureus* L. were also taken on the *Marrubium.* Near the cliff edge at one spot I picked a few leaves of *Daucus carota* which were discoloured by the feeding places of a leaf-mining larva. Only two larvae could actually be seen in the mines, but from these leaves I subsequently bred almost a score of the moth *Epermenia daucella* Pey. Apparently there were eggs present in addition to the two visible larvae.

Luccombe was visited on the 11th. The wild everlasting pea (*Lathyrus sylvestris*) flourishes here and supports small colonies of two of our most local species of microlepidoptera, namely *Laspeyresia gemmiferana* Treits. and the tiny *Leucoptera lathyrifoliella* Stt. Larvae of the latter were very plentiful. They are leaf-miners, and cause purple circular or oval blotches in the leaves, many of these blotches often being found in one leaf. There is a partial emergence of the moths in September, but the majority appear the following May. Pupation takes place outside the mine in a white silken elongated cocoon in the characteristic manner of all the species in this genus. Imagines of *Laspeyresia gemmiferana* are not uncommon here in June and are easily disturbed from the herbage, although it is usual to take a dozen males to one female. There seems to have been a lot of confusion as to the feeding habits of the larvae. Meyrick and Barrett both state that the larvae feed in the seed-pods, and I have collected the pods myself and also Mr. Lobb has twice sent me consignments of pods, but on each occasion all I succeeded in obtaining was a few larvae of *L. nigricana* Steph. An examinaton of the plants on my present visit showed that only a few undeveloped pods were present and that another month at least would have to elapse before any of the pods would be full. It was fairly obvious that the larvae must be full-fed in August so I started looking to see if there were any feeding marks in the stems. Suddenly I spotted that the terminal leaves on some plants were fastened together at the edges for the whole length of the leaf, and in these some tortricid larvae were feeding. About half of the spun leaves found had already been vacated by the larvae, but I managed to find enough larvae for myself and a few over to send to a couple of friends. These larvae agreed with Meyrick's description of *gemmiferana*—"plate of 2 greenwhitish with four dark dots," and I have little doubt that these are really this local species. On looking up Lhomme's description of the larvae I found the following note: "Chenille sur *Lathryrus latifolius* L., dans un pli longitudinal de la feuille", thus confirming this leaf-feeding habit of the larvae, although he also records "dans les gousses". I hope to breed the moth in May to clinch the matter. Seeing a few Agromyzid fly mines on the *Lathyrus* a few were gathered and passed on to Mr. Spencer, who succeeded in breeding one. He wrote me later that it was almost certainly a species distinct from any of our known British species.

My m.v. light was in use most nights—at Gurnard—but the temperature was low and the windy weather made conditions very unfavourable. Among a number of common species, I took single specimens of each of the following: *Eupithecia albipunctata* Haw., *Deuteronomos erosaria* Borkh., *Polychrosis fuligana* Schiff., and *Epithectis mouffetella* Schiff. —the latter being a species hitherto unrecorded for the Island. Local collecting rambles at Gurnard were very unfruitful but I found a number of empty Gracillaria "cones" on maple in a small wood, but failed to find a single larvae in any of these feeding places. Remembering there is a second species in this genus reported from the Island (*Entom.*, 1933, p. 230) I hope to be able to visit the spot at an earlier date and find out which of the two maple feeders is responsible for these spinnings.

Notes from the North-West

By F. M. B. Carr.

From the time of my return home from East Kent on 1st June till I went to Chester on 19th July I did very little collecting. This was in part due to bad weather and in part to the fact that I had very little free time. This usually productive season was rendered still more disappointing by the unfavourable nights, and seldom was the light worth working. Except for a couple of *Pyrausta nubilalis* Hübn. on 12th and 19th July nothing worth recording appeared during this period. A few larvae of *Gastropacha quercifolia* L. taken in Dorset the previous autumn survived the winter, and moths emerged towards the end of June. A single *Stauropus fagi* L. was taken in Branksome Park, Bournemouth, on 13th July. I was somewhat surprised one day to find two larvae of *Euproctis chrysorrhoea* L. in my garden at Mudeford feeding on the mint patch.

On 19th July I journeyed to Chester to spend a week with my old friends, Mr. and Mrs. Gordon Smith. The weather, unfortunately, lived up to its bad 1954 reputation, and seriously interfered with collecting. However, we had a very pleasant day on the Great Orme at Llandudno on the 21st. Our objectives were the local races of *Satyrus semele* L. and *Plebius argus* L. Of the former we only saw one, but *P. argus* obliged by being plentiful enough. My kind host told me to keep an eye open for the local *Sterrha dilutaria* Hübn. I kept both eyes open and succeeded in netting one (a moth, not an eye). Neither of us saw any more of this species.

The next day, 22nd July, we set out full of hope for the wilds of Carnarvonshire, intending to work the m.v. light and return with boxes full. But, alas! at the end of a long and lovely drive, down came the rain and that was that. There was, however, about an hour's collecting, on the outward journey, at Arenig, so that we did not return empty handed. Here we secured from tree-trunks several nice *Venusia cambrica* Curt. and *Epirrhoe galiata* Schf. and a solitary *Entephria caesiata* Schf.

The 23rd July proved a real "soaker". We took a short trip to Delamere, where we paid a visit to Mr. Ashworth, who showed us some interesting captures at light, including several *Harpyia bicuspis* Borkh. He spread out for our inspection his m.v. captures of the previous evening, and kindly offered us anything we wanted from amongst them. They included a number of melanic *Apamea monoglypha* Hufn., *Amathes ditrapezium* Schf. (1) and some nice *Plusia iota* L.

The evening of 24th July seemed promising, so Mr. Smith took me to Eaton Park. Here he illuminated the darkness with the m.v. light, and also our old friend the 2,000 candle-power electric lamp. For once the evening was warm. There was some light drizzle at times, and plenty of moths came, the number of species totalling 64. Among these were *Deilephila elpenor* L., *Notodonta ziczac* L., *Leucoma salicis* L., *Pseudoips bicolorana* Fues. (3), a new record for the locality, *Anaplectoides prasina* Schf. (1), *Cerapteryx graminis* L. (both sexes), *Bombycia viminalis* Fab. (all of the dark form), *Apamea ophiogramma* Esp. (1), *A. scolopacina* Esp. (1), *Plusia iota* L., *P. pulchrina* Haw., and *Rivula sericealis* Scop.

Collecting Notes during the Season of 1954

By S. G. Castle Russell.

I covered a lot of ground during the summer, and on the few occasions in which weather conditions made collecting possible and pleasurable, I found sufficient numbers of butterflies on the wing to keep myself and companion fairly well occupied. No species was met with in large numbers and it appeared from reports received from various districts that scarcity of butterfly life was generally in evidence.

I have known wetter summers in the past, notably 1903, but last summer was unusual not only on account of lack of sunshine but also on account of the continuous cold and violent winds from every direction. Even in fine summers far more butterflies on the wing are seen when the S.W. wind is in evidence than when the direction is from the N. or E. The difference in numbers is often considerable.

The continuous cold winds made it imperative to find sheltered spots in the woodlands, where the insects could find some warmth; but on the downlands, where large open spaces exist, sheltered places are few and far between and outside of these I found the winds so strong that I had some difficulty in keeping my feet on the slopes when walking: they do not seem to possess the holding power as of old!

In the West Surrey district the weather was not so bad in May and early June, and the usual more or less common species were found, usually in small numbers. I located a sheltered area in a woodland ride where it would seem that on the plentiful foodplant a number of ♀♀ *Anthocharis cardamines* had in the previous summer deposited a considerable number of eggs. In this colony I was fortunate enough to net a fresh specimen of the aberration in which the apical orange red areas are replaced by pale yellow—quite a prize, as this form, which varies from very pale lemon to light yellow, is met with but rarely. Continual examination of *Argynnis euphrosyne* produced nothing out of the way, but I had better luck with *Argynnis selene* and netted a very pleasing underside aberration with large and prominent silver spots and other silver markings. Of the larger fritillaries I saw very few, even in districts some 50 miles away.

From June onwards the weather began to get unpleasant, and periods of sunshine were infrequent. The July brood of *Polygonia c-album* was unusually scarce around this district, and I found ♀♀ of *Pararge aegeria* and *Pararge megera* difficult to locate. The *Lycaenidae* were also scarce and I only met with some three examples of *L. phlaeas* of the first brood, and few of the autumn brood were seen. I did not see a single example of *Celastrina argiolus*, and *Cupido minimus* and *Aricia agestis* were also scarce. Larvae of *Thecla quercus* were found in good numbers and a few imagines of *Thecla rubi* were met with on the wing. The various species of *Hesperiidae* that occur in the district were in fairly good numbers, as was *Hamearis lucina*.

After the Bank Holiday in August we spent a week in the Winchester district, where the weather conditions were so bad that it was only possible to collect continuously during two fine afternoons. The rest of the time was spent in our motor-car with an occasional sortie during very short spells of sunshine, amidst the usual gale. *Lysandra coridon* were in good numbers and nothing but very minor forms of variation were found. The remarkable thing in connection with this species was the emergence of very late colonies during the end of the week when the great majority of both ♂♂ and ♀♀ were all more or less worn. These late broods I gather occurred in certain other districts also. Perhaps these late emergences were due to the lack of sunshine. No variation occurred in such colonies as might be expected owing to retardation. I remember an instance at Folkestone many years ago when an emergence of *Lysandra bellargus* occurred on the top of Caesar's Camp in the first week in October. There was an abundant brood of the species in that year, but both sexes were well worn out towards the latter end of September. On that occasion considerable variation accrued from the retardation.

At Winchester there were fair numbers of *Maniola jurtina* and *Maniola tithonus* on the wing. From the former some nice examples of *transformis* were taken and from the latter a number of extra spotted forms, including one with three very heavy spots on the forewings——very unusual for the district. Finally we left earlier than had been intended, disgusted with the continual wind and rain, and, to add insult to injury, on arrival home I found I had left a new net, and a stick which had been in my possession for donkey's years, on the down. A local friend paid a visit to the spot two days after, but the net had evidently been picked up by a passer-by and, no doubt, been given to a boy friend.

In early September weather conditions became much more pleasant, and on Wednesday, the 1st, we paid an afternoon visit to the Lewes downs, where in a sheltered spot we enjoyed a brilliantly sunny time, amidst a good number of butterflies. On arrival my attention was attracted by what seemed to be an abnormally large ♀ of *Coenonympha pamphilus* sitting on a bunch of grass. On netting it I was delighted to find that I had acquired a very fresh male example of *Maniola jurtina* of the golden coloured albino form. *Polyommatus icarus* was out in good numbers, and in a stroke of the net I gathered about a dozen as they were preparing to settle for the evening. Amongst them I saw a nice *striata* form, but they were all so wild and endeavouring to escape that it was difficult to box any particular insect. Ultimately the aberration managed to escape, much to my chagrin, and although I spent a long time hoping to locate it I was not successful. *Lysandra coridon* were flying in good numbers but not a single specimen of *L. bellargus* was met with, and it would seem that the usual autumn brood did not appear.

On September the 3rd we paid a visit to the downs around Leatherhead and, shortly after arrival, I saw another albino *M. jurtina* flying. I followed it for some time, during which it was constantly worried by other butterflies of the same species, which would not allow it to rest. Finally it and another one flew high up in the air and after playing about for a short time they came down to earth close to me and I netted both. This albino is of rather an unusual form: on the upper side the forewings are light tawny coloured with very heavy androconial markings of black: the hind wings are normal. On the underside the forewings are of gold coloration and the hind wings of a walnut shade. It is a ♂ and in very fresh condition. This species is very fond of flying high up into the air and sporting together for a time and then descending to earth sometimes very far away from the place where they rose. Several other species do the same and I surmise that it is nothing more than their idea of a playful game.

I found breeding experiments very unsuccessful with all the species I dealt with, and unusually high mortality amongst the larvae. A spring brood of *Pararge aegeria* produced a striking form of ab. *cockayni*, a ♂ underside, the forewings being of pale tawny ground colour with the usual dark markings and the hind wings of light straw ground colour with two very tiny spots apart from the usual basal ones. Each wing has a wide deep black band. There is a fine ♀ of the same form in the Tring Museum. A number of larvae obtained from wild ♀♀ of *Pararge megera* failed to produce imagines except half a dozen which pupated. From one of these an imago emerged during the late autumn and I only recently found it lying on the bottom of the cage in a relaxed condition. It appears to have been affected by retardation as the underside is very similar to the form known as *meridionalis* whilst the upperside is merely a well marked typical ♀. The underside is also very dark in colour.

During the early spring I collected about a dozen eggs of *Thecla betulae*, and Major Collier, who was with me, kindly handed over 10 he had found. Only six imagines emerged from these, but one ♂ was more or less devoid of the usual yellow marking on the forewings. Which of us can take credit for acquiring this aberration will never be known!

In spite of the adverse conditions I had to contend with I did not do so badly, and if I were only capable of the amazing activity of Major Collier (the patentee of the aberration *aperta* of *Melanargia galathea*) I might have done even better as I am convinced I saw two "extremes" on the wing, one a *A. cardamines* of yellow ground colour and the other a melanic *Pararge megera*. To have captured them would have involved a chase at the double which, alas, is no longer one of my accomplishments.

Erratum.—Page 40, paragraph 8, line 2. *Eupithecia palustraria* Dbld. The date of capture should be amended to read "13th June 1954". This error occurred *in lit.* between Mr. E. C. Pelham-Clinton and myself, and is much regretted.—G. W. Harper.

Sugaring with "F. P."

By EDGAR J. HARE.

It was at the Derby Arms, Witherslack, in June 1926 that I first met F.P.*, then in his early sixties—a memorable occasion for me, for it was the first serious collecting trip I had ever made, apart from a few short visits to Wicken Fen, and it transformed me from a desultory to a fairly assiduous collector, besides marking the beginning of an association with F.P., which lasted for the rest of his collecting days. From him I learned much for he imparted his knowledge without stint, and to him I shall always be grateful.

There must still be a number of collectors who knew F.P., but, by now, a great many more who did not. I can best describe him to the latter by saying that he exactly resembled the picture of the bearded bug-hunter on the cover of Newman & Leeds's *Text Book of British Butterflies and Moths.* If you haven't a copy of the book, call up the image of King Edward VII. Then, if you think of some of the more formidable attributes of Queen Victoria, you will have a very fair picture of his mother, a matriarch if ever there was one, who died about 1930 at the age of 100, and to whom he remained somewhat in bondage until her death. F.P. told me that the old lady was rather contemptuous of his entomological activities, and on one occasion, inquiring about his plans, said: "Let me see, when is it you are going bird-nesting?"

During that stay at Witherslack we naturally did some day-time collecting, but sugaring was always the great event—not that it was particularly productive on that occasion, and indeed I remember a completely blank night in a well-known locality which F.P. afterwards used to call Tom Fool's Lane. By way of contrast, a visit to Burnt Wood, Staffordshire, in the summer of 1927, was rewarded by an abundance of moths at sugar the like of which I have seldom seen. My pleasure at making my first acquaintance with *tincta* and *prasina*, and F.P.'s amusement at the number of moths which I thought fit to box—*haec olim* . . . .

Our arrival at the quarters chosen for a collecting expedition was invariably marked by a certain routine. First came the unpacking of F.P.'s 55 items of collecting equipment, and then his discovery that the cider, ordered in advance, was put up in bottles containing reputed, instead of Imperial, pints. The next job was to prepare the sugaring mixture, the principal ingredient of which was Fowler's West India treacle.

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*Frederic Pennington was born in September, 1863, the son of a wealthy cotton magnate who for some time was Liberal M.P. for a Lancashire constituency. Pennington, who was a member of the Reform Club for over 50 years, started his career as private secretary to John Bright; but sedentary employment irked him, and, as he was under no necessity to earn a living, he lived abroad for some twenty years, occupying himself with ranching in Canada, travelling round the world, and big-game hunting in East Africa. On his return to England in about 1905 he devoted much of his time to Lepidoptera and had a wide circle of friends among collectors and others. His collection, dispersed at auction after his death, was a purely personal one, for he had a great contempt for what he called "the three B's—beg, barter and buy". He died, a bachelor, in April 1940, after a long illness.

Sugaring was a ritual for F.P. He would never allow anyone else to mix the dope, and he preferred to apply it to the tree-trunks or posts himself. It had to go on exactly at sunset, and the first round had to be made precisely three-quarters of an hour later; and if the moths didn't start coming then, they heard about it. No other mode of collecting appealed to him so strongly, and it was a favourite saying of his that in his time he had used enough treacle to float the *Titanic.*

F.P. did not much care about breaking new ground, but preferred the well-worked localities where he was reasonably sure of getting the species he wanted. All the favourite hunting-grounds from the Lizard to Unst knew his treacle-tin and brush, and for one of his portly frame his energy was amazing.

In 1931 F.P. bought his first motor-car, and in May of that year, prudently travelling by train, I joined him in a week's collecting in the Test Valley. One of our objectives was to get larvae of *Plusia chryson,* and he had obtained permission to search for them in the grounds of a private house. Accordingly, we went there one afternoon in the car, and signalled our arrival by pushing over a length of post-and-rail fence in parking. The larva hunt was quite successful, so we decided to return to our inn and prepare for the night's sugaring. But the car flatly refused to start, and so F.P., having tried everything he could think of without avail (I being a child in such matters), concluded that there was nothing for it but to walk to the nearest garage—at Stockbridge, three miles away. We set out on the tedious tramp, and had done about a mile, when F.P. suddenly stopped, slapped his hand to his chest, and produced from a waistcoat pocket—the ignition key! And so we retraced our steps and, of course, the car started at once. The return journey was made in great style. At the corner of the sharp turn into the inn yard stood a well-grown bush; but it stands no more, for we tore it up *en passant*, and, entering the garage, would have driven out through the back had not further progress been arrested by a number of petrol cans which we squashed as flat as the fruit tins beaten by George's oar in *Three Men in a Boat.*

Most of the amusing incidents which occurred on our sugaring forays have now passed from my memory; these, as well as details of purely entomological interest, were recorded by F.P. in his diaries which, unfortunately, were destroyed by an over-zealous executor. But I recall a visit to Mullion where we used to sugar the palm-trees in the hotel garden. One evening, as we were making our first round, the rays of F.P.'s acetylene lamp illuminated a sugar patch on which was a moth of incredibly gorgeous appearance. What on earth could it be? Closer inspection revealed a most cleverly contrived dummy of painted paper—a leg-pull by some young people who were waiting behind a bush to enjoy our discomfiture.

In September 1937 F.P., whose health by then was none too good, decided to put in ten days' sugaring with me on the South Devon coast where I was staying. On his arrival he found a telegram awaiting him, announcing the death of a sister and requesting his immediate return. But in spite of this ill-timed demise he was determined to have one night's sugaring. It is pleasant to recall that the night was favourable and the sugar well patronised, for I don't think he ever went collecting again.

COLEOPTERA

Notes on some Longicornia from Herefordshire

By A. A. Allen, B.Sc., A.R.C.S.

Following on the lines of the interesting notes, in the past numbers of the *Record*, on Longicorns from North Herts. by my friend, Mr. Ferry, and from various localities by Mr. Hunter, I give here the results of a week's collecting at Moccas, near Hereford, at the beginning of last June, so far as this attractive group of beetles is concerned. The weather was execrable much of the time (rain fell in torrents on most days after a fairly severe spring drought)—otherwise this short list might have been longer. The paucity of Lepturine species may be due to my being rather too early for several of them, as well as to insufficient sunshine and a shortage of the right kinds of flowers in the best places. The locality is ancient park-land situated on the Old Red Sandstone of the Wye Valley, and is secluded, picturesque, and—at least in insects connected with timber trees—entomologically rich. I am greatly indebted to Sir William Cornewall, Bt., for kind permission to collect on his property.

Tetropium gabrieli Weise: in moderate numbers under the bark of a larch log, some still in the pupal stage. Eclosion takes place as early as April in certain cases; but emergence is evidently much later, for those found in June were all quiescent in their cells until disturbed, when they would begin to run rapidly. *Phymatodes testaceus* L.: under oak bark singly (but it is not solely attached to this tree). In its chiefly nocturnal habits, quick movements, and subcortical larvae and pupae, it closely approaches the last species though they are not very nearly related. *Phymatodes* (*Poecilium*) *alni* L.: one dead on a fallen oak trunk; a few years ago, in early May, I beat some examples from oaks in the same place. It breeds in the dead twigs. *Pyrrhidium sanguineum* L.: though not actually found on this occasion—it was probably too late—this colourful species should be included here as it occurs in May on fallen oak boughs in Moccas deer-park, where I had the pleasure of taking it in 1950—thanks to Mr. R. W. Lloyd, who had discovered it there a year earlier, and who has since found it plentiful in some seasons. It was previously very doubtful as a native of Britain. See *Ent. mon. Mag.*, 1951, **87**: 157-8. Unlike the first two species above, the larval and pupal stages are passed in the solid wood and the adults are diurnal and sun-loving. *Clytus arietis* L.: a fine specimen on a freshly cut paling in a hedge. *Anaglyptus mysticus* L.: one beaten from hawthorn, the blossoms being nearly over. *Molorchus minor* L.: larvae in their winding galleries under the bark of a large spruce log, and two dead imagines and remains of others in the exit-holes of the pupation-chambers which in this species are perpendicular tunnels in the solid wood. *Rhagium mordax* Deg.: seen by me on a previous visit only (May 1950, on hawthorn bloom); apparently not abundant in the area. *Grammoptera ruficornis* F.: common on flowers, especially of hawthorn, and on oaks, etc. *Alosterna tabacicolor* Deg.: not uncommon in similar situations, but more local. *Leiopus nebulosus* L.: on oaks, frequent. *Pogonocherus hispidulus* Pil. & Mit. (= *bidentatus* auct.):

one beaten off 'stag-horned' oak branches; the species is, however, common in the district, and I took several there in May 1950. *Mesosa nebulosa* F.: a single specimen by beating oak—my first capture of this handsome and uncommon longhorn. Like *Rhagium*, it overwinters in the perfect state before emergence. *Stenostola ferrea* Schrk.: another rare species I was glad to meet with for the first time; remarkable by its strong preference for lime, particularly the native small-leaved lime (*Tilia cordata* Mill.), and its perhaps consequent absence (as far as is known) from our south-east counties. I found it only on two old trees of the above species in widely distant spots, one of which, however, yielded but a solitary individual; it is to be had by beating the outer leafy boughs of the lime, chiefly those facing the sun, and is very active and flies readily; it appears to have a short season. The larva lives in the dead twigs and small branches, even where fairly rotten.

Most of these species have already been taken in Moccas Park by Mr. G. H. Ashe or Mr. R. W. Lloyd, or both, and only *T. gabrieli* and *M. minor* are new to the county list; see Tomlin, *Herefordshire Coleoptera*, 1949, part 2, and the supplement by Hallett, 1952 (Hereford). Further species there recorded from Moccas are *Prionus coriarius* L. and *Rhagium bifasciatum* F. Mr. Ashe has taken the scarce *Molorchus umbellatarum* Schrb., I believe from fruit trees (and there are probably others to be added, such as one or two Strangaliae, and very likely *Judolia cerambyciformis* Schrk., which is common near Monmouth and in many places in East Wales). It will thus be seen that the Cerambycid fauna of the area is neither inconsiderable nor uninteresting.

DIPTERA

Flies visiting the Bluebell *Endymion nonscriptus* (L.) Garcke

By L. PARMENTER, F.R.E.S.

It seemed strange that few insects were recorded pollinating the Bluebell in that part of the Biological Flora dealing with this plant by G. E. Blackman and A. J. Rutter (1954). Every spring we have sheets and sheets of Bluebells and yet only 7 bees and 4 flies are noted. The beetles *Meligethes kunzei* Er. and *M. atramentarius* Forst. (Nitidulidae) are known to frequent the flowers the larvae of this genus living on pollen.

Twenty years previously A. H. Hamm (1934) had recorded at Cothill, Berks., on 9th May 1933, as visitors to Bluebell flowers, then called *Scilla nonscripta* Hoffm. & Link., *Leucozona lucorum* (L.), abundant, *Rhingia campestris* Mg., abundant, and *Syrphus bifasciatus* (F.) occasional.

Looking through my notebooks I have found further records of Syrphidae and also of species of three other families visiting this flower:—

Boxhill, Surrey, 1st June 1941. *Platycheirus tarsalis* (Schum.) ♀, *P. albimanus* (F.) ♂, *Bombylius major* L. (Bombyliidae) ♀. The latter also visiting Ground ivy, *Glechoma hederacea* L.

Worms Heath, Surrey, 9th May 1942. *Rhingia campestris* Mg. 2 ♂ ♂, 2 ♀ ♀, *Melanostoma mellinum* (L.) ♂, *Platycheirus scutatus* (Mg.), ♀, *Syrphus luniger* Mg., ♀, *Sphaerophoria scripta* (L.) var. *strigata* Staeger ♂.

Bookham Common, Surrey, 10th May, 1942. *Mellanostoma mellinum* (L.) 2 ♂ ♂, *Rhingia campestris* Mg. ♂ ♀, the latter also visiting *Glechoma hederacea* L. and Bugle, *Ajuga reptans* L.

Chelsham, Surrey, 11th May 1942. *Rhingia campestris* Mg. ♂, *Platycheirus albimanus* (F.) 1 ♂, 2 ♀ ♀, *Syrphus venustus* Mg. ♂, *S luniger* Mg. ♀ and *Orthellia cornicina* (F.) (Muscidae) ♀.

Bookham Common, 14th May 1942. *Rhingia campestris* Mg. many, also visiting flowers of *Glechoma hederacea* L., *Ajuga reptans* L. *Viola* sp. and Primrose, *Primula vulgaris* Huds.

Bookham Common, 11th May 1947. *Rhingia campestris* Mg. also visiting a few Bluebell spikes that Miss C. E. Longfield, F.R.E.S., had picked and was holding in her hands. The same species was also seen visiting flowers of Lesser Celandine, *Ranunculus ficaria* L., Blackthorn, *Prunus spinosa* L., Hawthorn, *Crataegus monogyna* Jacq. and Dandelion, *Taraxacum officinale* agg.

Banstead Wood, Surrey, 2nd May 1949. *Melanostoma scalare* (F.) ♂, *Rhingia campestris* Mg. 1 ♂, 1 ♀, the latter also visiting *Glechoma hederacea* L.

Bookham Common, 8th May 1949. *Bombylius major* L. and *Rhingia campestris* Mg. ♂, again the latter also visited *Glechoma hederacea* L. and *Ajuga reptans* L.

Coulsdon, Surrey, 23rd May 1953. *Empis* (*Pachymeria*) *femorata* F ♂. This is an interesting observation for normally the species feeds by sucking captured flies and until then I had only once seen the species visiting a flower, taking nectar from the common Daisy, *Bellis perennis* L. (Parmenter, 1951).

Although these records of Bluebell visitors increase the number of species of diptera from four to fourteen, I have little doubt that more will be added by further observations. Undoubtedly *Rhingia campestris* Mg., which breeds in cow dung, is a frequent visitor over a wide area. It appears to prefer blue-violet coloured flowers mostly of low stature but will rise a few feet. I gave a fuller list of the flowers visited by this species in 1948 but without giving any counts per flower. It would be interesting to know the order of preference and whether selection is by colour, scent or shape of corolla.

REFERENCES.

BLACKMAN, G. E. and RUTTER, A. J., 1954. *Endymion nonscripta* (L.) Garcke). *J. of Ecol.*, **42** : 629-638.

HAMM, A. H., 1934. Syrphidae (Dipt.) associated with flowers. *J. Soc. Brit. Ent.*, **1** : 8-9.

PARMENTER, L., 1948. *Rhingia campestris* Mg. (Dipt., Syrphidae)—a Further Note. *Ent. Record*, **60** : 119-120.

PARMENTER, L., 1951. Notes on the genus Empis (Dipt., Empididae) in Britain. *Ent. mon. Mag.*, **87** : 41-44.

Microdon devius L.—A specimen of this rare fly was generously given to me last autumn by Mr. W. H. Spreadbury who reported that he had taken it at Ranmore, Surrey, at rest on a flower of the Ox-eye Daisy. Of the four species in this genus which occur in Britain, *M.*

mutabilis is stated to be "the most common and widely distributed" (Donisthorpe's *Guests of British Ants*). *M. eggeri* Mik seems to be the commonest species in Surrey and I have bred it from Oxshott and have also taken the imago at Dunsfold. *M. devius* has already been reported from Boxhill, which adjoins Ranmore. A peculiarity of this species is that it has never been bred in Britain, but abroad it has been taken with *Formica sanguinea, F. fuliginosus* and *F. fusca*. Little seems to be known of the fourth species—*M. rhenanus* Andries. It might be mentioned that the larvae of *M. eggeri* have been reported many times in Britain invariably with the ant *Lasius niger* Latr. I am indebted to Mr. J. E. Collin for his identification of this uncommon species.—S. Wakely, 26 Finsen Road, Ruskin Park, London, S.E.5.

ORTHOPTERA

Mole-crickets in Britain

By D. K. McE. Kevan.

I should very much like to support the late Dr. Malcolm Burr's and Mr. P. B. M. Allan's pleas (*antea*. **66**: 203; **67**: 21-23) for more information regarding this interesting animal which has been so long known in this country, which has half a dozen vernacular names and yet is so rarely encountered to-day. One of its names "Fen Cricket" perhaps suggests some reason for its apparent decline, in as much as fen and similar land is now very greatly reduced in extent, and it is certain that the Mole-cricket is virtually, if not actually, extinct from many places where it was once common—it must be close upon eighty years since there was an authentic published record of the species from Cambridgeshire for example—but many suitable habitats remain and it may well be that Mr. Allan's suggestion of inadequate field work may explain its apparent scarcity. Nevertheless, it is such a conspicuous insect when it comes to notice that one surely does not have to rely upon orthopterists for records, and it would really seem that there has been a genuine decline in the numbers. It is quite true that there is barely a recent specimen known and most of such records as exist are unsatisfactory and, indeed, do not necessarily refer to native insects for certain. It would, therefore, be a most interesting study if one could discover just where in this country the species now occurs and compare it with its published British distribution, relating any changes to alterations of the natural environment which may have occurred over the last hundred or so years.

The distributional picture which Mr. Allan gives us, like that of the authors he quotes, is not quite complete and the Mole-cricket is, in fact, recorded from twenty (not fourteen) English counties (comprising 26 vice-counties)—see Kevan (1952; 1954)—and it is also known from Glamorgan and Pembroke as well as Caermarthen (omitted by Kevan) in Wales, and Dumbarton as well as Renfrew in Scotland; the Angus record is quite unreliable. It is indeed odd that the Mole-cricket does not seem to be known from the Avon Valley of South Wiltshire, although there is an old record from near Devizes in Wilts. N.

It might not be out of place to note here also that Mr. Allan's unawareness of any Continental works dealing with morphology, anatomy and habits during the last fifty years does not mean that such works do not exist. There is, for example, the excellent anatomical study by Carpentier (1936), the biological and economic review of the Iberian species (including *G. gryllotalpa* L.) by Morales Agacino (1940) and the popular account of mole (and other) crickets recently published by Beier and Haikertinger (1954), to mention but three. The second author gives the distribution of *G. gryllotalpa* as Europe (including the whole of Spain and the Balearic Is.), the Canary Isles, North Africa and Western Asia. It is also an introduced species in North America. In Europe it occurs from the whole Mediterranean region in the south to Sweden in the north—Ander (1945) gives it only as far north as Småland and Öland—and from Spain and Ireland in the west to the Urals in the east, so that it would appear to be a very adaptable insect, not likely to become totally extinct in this country and therefore well worth seeking.

In conclusion, I should like to draw attention to the apparent decline also of the Field Cricket, *Gryllus campestris* L., which seems likewise to have been much more widely distributed and commoner in the past. A few recent records exist for this species, notably from Surrey, but *all* recent records of the distribution of this interesting species in Britain would be most welcome to the writer.

REFERENCES.

ANDER, K., 1945, Catalogus Insectorum Sueciae V. (Orthoptera). *Opusc. Ent.* 1945 : 127-134.

BEIER, M., & HAIKERTINGER, F., 1954, Grillen und Maulwurfsgrillen. *Neue Brehm-Büch.*, Leipzig, **119** : 1-35.

CARPENTIER, F., 1936, Le Thorax et ses Appendices chez les vrais et chez les faux Gryllotalpides. *Mem. Mus. R. Hist. nat. Belg.*, **4** : 1-86, 1 pl.

KEVAN, D. K. McE., 1952, "A Summary of the Recorded Distribution of British Orthopteroids. *Trans. Soc. Brit. Ent.*, **11** : 165-180.

———, 1954, Further Notes on the Distribution of British Orthopteroids. *J. Soc. Brit. Ent.*, **5** : 65-71.

MORALES AGACINO, E., 1940, Los *Gryllotalpinae* de España. *Trab. Inst. nac. Invest. Agron.* (*Estac. Fitopat. agric.*) *Madrid*, (*Fitopat.*) **41** : 1-22.

THE MOLE-CRICKET IN EGYPT.—With regard to Mr. Allan's interesting article on the Mole-cricket in the January *Record*, these insects certainly do fly, although I have not actually seen one on the wing. One evening in June 1950 while walking through the public gardens in Ismailia, Egypt, with a friend, I was struck on the chest by an object which fell to the ground with a soft 'plop'. A hastily-lit match revealed an almost full-grown Mole-cricket scurrying across the path. On another occasion a soldier stationed at Fanara, near the Bitter Lakes, brought me a specimen which he said had flown into his tent.

Our own species of Mole-cricket is very common in Egypt—and at times abundant in cultivated patches in the Canal Zone where the soil is mainly a mixture of desert sand and black mud brought in from the Delta (a powdery soil unlike that in the English habitats). The insect's scurrying run is much like the hesitant run of a mouse—and, indeed, I have known several people mistake it for a mouse when it entered a verandah at night.

The abundance of the Mole-cricket in the Canal Zone is shown by the abundance of the large black Sphegid wasp *Larra anathema* L. which preys exclusively on *Gryllotalpa*. The wasp hunts the cricket in

its burrows, stings and paralyzes it, and then drags it out by the head. I have watched the wasp "beating" a large patch of grass in the Ismailia Gardens—foot by foot, flying a little and then searching among the grass a little until it reached a burrow. I think sight comes first and scent later in seeking the prey. I captured both wasp and prey on one occasion on emergence from the burrow. The cricket was limp and except for spasmodic twitching of the tarsi appeared lifeless. Placed in a box it recovered in half an hour. It would appear that the first sting in the burrow has to be followed up later by further stings if the cricket is to remain quiescent for the wasp's egg to be laid on it. Possibly the difficulty of manoeuvring a sting in the narrow earthen burrow is responsible for the failure to achieve complete paralysis first time.

An Egyptian clerk told me that the Mole-cricket is often a pest in vegetable plots, and recently it has been recorded as a pest in Malta.—A. E. Le Gros, 9 Victoria Avenue, Wellington, Salop. 22.i.55.

[Mr. D. K. McE. Kevan writes:—"The Larrid wasp *Larra anathema* Rossi (Sphecoidea) is known to attack *Gryllotalpa* in Europe also. Other species of *Larra* have been studied in the West Indies in connection with the control of the Mole-crickets *Scapteriscus vicinus* Scudder and *Gryllotalpa hexadactyla* Perty (Adamson, A. M., 1942, *Trop. Agric. Trin.* **19**: 43-45); *L. americana* Sss. was actually introduced into Puerto Rico for the purpose and became established (Wolcott, G. N., 1938, *J. Dep. Agric. Puerto Rico*, **22**: 193-218; 1941, *J. econ. Ent.* **34**: 53-56), but these wasps are apparently of little value in reducing numbers (Callan, E. McC., 1945, *Trop. Agric. Trin.* **22**: 146-148; Wolcott, G. N., 1951, *Bull. Univ. Puerto Rico Exper. Sta.* **99**: 11-12).]

Our illustration (above) is taken from the coloured plate in Vol. I of Kirby & Spence's *Introduction to Entomology*, 1818. The engraving must have been made from an unusually large specimen. Burr, in his "Synopsis of the Orthoptera of Western Europe", gives the length of the ♀ as 50 mm. He there remarks: "Occurs throughout Europe and from Sweden to Spain; in England rare, and local: New Forest, Isle of Wight, Selborne, etc.; in France, abundant, often doing damage to gardens by destroying roots in its subterranean burrows. In Sweden at Landskrona, Rösjeholm, Halland, Calmar, St. Röi, and Bleking. Common in Belgium. The rare var. *cophta*, Haan, with abbreviated wings, is recorded from Brindisi".

[An interesting letter about the mole-cricket in the South of France has just come to hand from our correspondent Mrs Vera M. Muspratt of St. Jean-de-Luz, Basses Pyrénées, and with her permission we print the following extracts from it.—P.B.M.A.]

"Your article on the mole-cricket in the January *Record* has interested me very much indeed, and I was surprised to read that in England these insects are found in bogs and marshy districts. My garden here in the South of France is a very small one and is all on bad stiff clay, so bad that when I bougth some additional ground adjoining it, which was on a steepish slope, I made the ground into terraces: the clay was dug out to a depth of about a yard and replaced by good soil. This was done to nearly all the garden except for the paths, and it was not until about a couple of years later that the hateful mole-crickets began their atrocious tunnellings and depredations. I have tried all kinds of poisons, but the crickets thrive on them —as they do on my new potatoes. They are really much worse than the millions of slugs and snails which are another dreadful pest in this part of the world. One can cope with the latter up to a point, but nobody has yet succeeded in coping with the mole cricket—nobody in this neighbourhood anyway.

Arcachon (Gironde) was, and probably still is, another place that used to be infested with mole-crickets, and Arcachon is built on pure sand. My father took a furnished villa there in 1902; the garden was very beautiful and well kept. One day I noticed that the gardener was bedding-out his plants in wire-netting bags; this intrigued me and I asked him why he was doing it. "Les taupes-grillons" he replied.

Except for potatoes, carrots, turnips and lettuces I believe they do not eat many plants; but in making their tunnels, which like the mole they construct for the purpose of hunting worms and other beasties, if they are hindered by a stem or root they cut clean through it with their "fore-paws". I have read this, probably in one of Fabre's books, with which I was already acquainted in 1902, and I have also noticed it myself, though I must add that I have not really observed this insect scientifically.

When I plant tomatoes here I usually have to replace say five out of every twenty, either the next day or in a few days' time, the mole-crickets having cut through them; but they don't *eat* the plants. Lettuces they pull down below the surface of the soil, and eat them.

Although I have hunted snails and slugs night after night with an electric torch I have never seen a mole-cricket flying nor found one on the ground. They are sensitive to sound, as sometimes in the daytime I see them come up to the surface of the ground a good yard from where I am digging. I have found the nests and eggs and young, and I have always unhesitatingly killed the lot. The eggs are tough and difficult to squash.

My top garden is also stiff clay; there are paths and grass and flowerbeds, but the beds are not big ones. Here too the clay has been dug out and good soil put in, but I have never found a mole-cricket in the top garden. I think the beds there are not big enough for the mole-crickets to find sufficient food, and they are unable to tunnel through the stiff clay on which the grass grows. The farmers here say that the crickets are found only in the cultivated fields. I think the grass roots plus the clay in my top garden are just too much for them.

The garden at Arcachon had been in existence for some years as the soil, though very light, was good; trees, bushes, and cultivation had made it stiff enough for the mole-crickets to make their tunnels; otherwise they could not have existed there, for their tunnels would have fallen in.

I should have thought that in England they would never have been found in marshy places, though they do like water and when we get a hot summer with hardly any rain they are not such a pest; but a sufficient stock remains to start the trouble all over again the next year. There are times when the whole of my lower garden is riddled with their burrows: these of course they make at night, and they are *very* rarely seen in the daytime."

Current Notes*

We have received a catalogue of second-hand books from Antiquariaat Junk of Lochem, Netherlands, which contains some 1,250 books on insects in addition to 1,500 items on general zoology. The first item which caught our eyes was a copy of Haworth's *Lepidoptera Britannica*, priced at £50. This copy of this very rare book came from the library of Admiral Sir F. F. Haworth-Booth, which was sold by auction in 1936. It is in a modern half-calf binding. A copy of Part I (1803) only—172 pages, comprising the families Papilio, Sphinx, Zygaena and Bombyx—is also offered by the Antiquariaat Junk for £7 10s, and a copy of Part IV (1828, the micros) for £4 10s.

The legend of the Englishman's wealth still persists on the Continent—if one may judge by recent catalogues received. French books, German books, Dutch books, Scandinavian books—books in any language other than English—are usually moderately priced. But an English book—Ah! this is valuable: the English are so rich! . . . So up goes the price. How well we remember encountering this kind of thing when we were in the habit of haunting the book-trays topping the parapets of the Seine in Paris fifty years ago! Time and again we would say to the *bouquiniste*: "Why is this tattered English book so expensive?" Always there came a shrug and a keen glance, implying so clearly "It is an English book, and the English are so rich . . ." Now that the English are so poor a liberal discount on the favoured-nation principle might help things along a bit. Will the Continental booksellers please note?

As a matter of fact fifty pounds may not be an exorbitant price—as money goes to-day—for a copy of Haworth. There must be very few copies in existence, most of them are on the shelves of societies and institutions, and the chance of coming across one grows more remote every day; for it is not the kind of book that anybody unlearned in Entomology would think worthy of preservation. It is an ugly dumpy book printed on dreadful paper (which is fox'd in each of the three copies we have seen) and indeed it is so unattractive in appearance and typography that a housemaid tidying up an attic would have no hesitation in consigning such a volume to the dust-bin. It is in fact in the same class as the famous Elzevier *Le Pastissier François*—books intended to be used as working tools, therefore produced as cheaply as possible. And here is a copy of this ugly duckling for sale at fifty pounds, bound in half-calf with a gilt back and dentelle borders . . .

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*These Notes are by the Assistant Editor.

Another work, included in the same catalogue, which we should like to possess is the Grand Duke Michael's *Mémoires sur les Lépidoptères* with its 160 coloured plates—and such plates too—published in nine quarto volumes at St. Petersburg, 1884-1901. The price of this copy is something over £300. There is still a book to be written about this brother of an emperor, ruling over the province of the Caucasus from an ancient stronghold in the mountains, entertaining collectors of various nationalities from all over Europe, the friend and patron of Alpheraky (whose tragic death in the Alps is still remembered by some of us), Christoph, Staudinger, Snellen, Standfuss, and the man with the unpronounceable name, Grum-Grshimailo, encouraging and helping and commissioning them to collect and describe the entomological fauna of the whole of the near East. Peace to his shades! He was a great man in every sense of the term and he has left a splendid monument to his zeal and industry.

A catalogue of books (No. 727 of 1954) recently issued by Bernard Quaritch Ltd. also has a good sprinkling of *bonnes bouches*. Thomas Moffett, Moufet or Muffit's "Theatre of Insects"—the original edition in Latin, 1634—is priced at ten guineas, which seems a modest sum to ask for this scarce folio with its 500 woodcuts. Later the book was rendered in English and printed with the second edition of Topsell's "Four-Footed Beasts", 1658. A little-known and rather entertaining book by Martin Lister the coleopterist (and conchologist) is priced at five pounds and titled "A Journey to Paris in the Year 1698". The book ran through three editions within the year, but for all that it is of rare occurrence nowadays. Nothing was too trivial for Lister to record, and William King (the Queen Anne wit) travestied it in "A Journey to London". Having a long-forgotten copy of King's tract on our shelves we took it down and read it through again, mildly amused by this piece of gentle fooling. But there is nothing entomological in it.

Quaritch's catalogue also contains a complete set (£60) of *The Zoologist*, 74 vols., from its commencement in 1843 until its end in 1916. For years we have wished that some public-spirited man would make a card index of the entomological items in these volumes, under the specific names of the various Orders, as is done in our own Special Index, and present the fruit of his labour to an institution in London where it would be available to all students of lepidopterology. *The Field* is another periodical which badly needs indexing similarly; years ago its pages abounded with entomological matter, much of it of permanent value. The most likely places, to-day, to contain complete sets of *The Field* are the basements of London clubs; for it was a large, bulky, unwieldy weekly magazine and took up too much shelf space to remain very long in a library above stairs. Doubtless most of the complete sets have been pulped long ago. Since the British Museum's newspaper store at Hendon was totally destroyed by enemy action during the last War we do not know of any public institution where a complete set of

The Field may be consulted to-day. Can any of our readers tell us of one in London?

Notes on Life-Histories, &c.

Idling among back numbers of this magazine we recently came across a report of the sudden and profuse occurrence of *Agrotis* (*Spaelotis*) *ravida* Schiff. in Oxfordshire, when 200 specimens were taken in two days. Much the same thing happened to us in Essex in 1936. These events strengthen a belief which we have held for a good many years, namely that the lepidopterous inhabitants of a region are constantly "on the move" about that region. The egg which gave rise to that larva of *Triphaena pronuba* L. in our garden may have been laid by a moth which hatched from the chrysalis a hundred miles away. The unusually large number of *Apamea monoglypha* Hüfn. which visit our sugar one night may have landed from the Continent less than an hour previously.

Clearly it must be the nature of every lepidopteron to spread throughout the whole of an area which satisfies all its physiological requirements; for it is to the advantage biologically of every organism to occupy the whole area which is capable of being a habitat. In fact, it will continue to spread—in default of some retrograde evolutionary character—until the climatic factor becomes adverse, though the other ecological factors may still be congruous. For climate is ultimately the determining factor in the existence of an insect in any particular place: it is the "long term" policy in the phylogenesis of a species, and although its effects may be modified from time to time by other factors, whether intrinsic or extrinsic, it is the factor which in the last analysis determines the course of the evolutionary stream.

During the last war a searchlight, to aid anti-aircraft gunners, was set up in a small town on the borders of Essex and Hertfordshire. By a fortunate chance it brought to light—literally, in both senses—an immigration of Noctuid moths of a magnitude hitherto perhaps unsuspected by any of us. Mr. Clifford Craufurd gave an account of the matter in this magazine in 1945 (vol. 57, pp. 29-31); and as the majority of our present subscribers were not readers of the *Record* at that time we reproduce a part of Mr. Craufurd's account herewith. It occurred on 17th September 1944, at Bishop's Stortford, Herts.

"When leaving my house . . . . I noticed a large number of objects flying in the beam of a searchlight stationed some three hundred yards away. Several people were standing in the road watching the light, and various opinions were expressed about the objects I had noticed, some asserting that they were birds, others being of the opinion that they were bats. I suspected they were moths, but they seemed so large and were so high up that at first I was doubtful. Accordingly, I went up to the searchlight (I was in uniform) and soon discovered that the objects were indeed moths and in enormous quantity. The crew of the searchlight told me that the beam had a range of several miles and that moths were flying about three-quarters of the way up what they called the 'apparent length of the beam'.

"I estimated that some of the moths were flying between 2,000 and 3,000 feet up. The only species that could be identified with any certainty at that height was *Phlogophora meticulosa,* as their yellow undersides were very conspicuous. One would naturally have thought that so small a moth would have been invisible at such a height; but although the moths within about 30 feet of one's head, when standing immediately below the light, appeared to be of normal size, as the distance increased they also appeared to increase in size until, at the maximum height I have indicated, *P. meticulosa* seemed to have about three times its usual span.* A quarter of a mile away from the beam the sight was very beautiful, the moths dancing in and out and up and down the beam. They were easily visible more than half a mile away, and I have no doubt that on that Sunday night other searchlight units were having a similar experience''.

This great invasion of moths contained also *Plusia gamma* L. and *Amathes c-nigrum* L. Mr. Craufurd estimated their abundance as follows:—'*P. meticulosa* was easily the most abundant species; *Plusia gamma* came next (about 30%, I should estimate), and then *Amathes c-nigrum* (about 5%). The 'Sallow' moths made up a good proportion of the remainder, which were chiefly Trifinae. Very few Geometridae were seen. The height at which the three above-mentioned species . . . were flying seems to me to be of considerable interest, as we know so little about the height at which migrating moths travel''.

To come back, then, to the note on which we began this discussion. There may well be no such thing as a purely British race of many species of our Noctuae. Many of the moths which we have taken at sugar and light, and now rank in series in our cabinets as native insects, have flown to us from overseas, while a proportion of those specimens born and bred in our woods and fields adorn the cabinets of collectors in the Netherlands, in Belgium and in Northern France. This, doubtless, is the reason why so few, so very few, of our Noctuae exhibit racial characters although we may have reason to believe (in the case of those species which on the mainland range far to the North) they survived the last glaciation in sheltered spots of our southern counties and have been with us for many thousands of years. For the cross-pairing of locally bred individuals with Continental emigrés must be so constant, so regular in fact, as to preclude the evolution of special (racial) characters. In the case of some species (e.g., *Agrotis segetum* L., *Amathes c-nigrum* L.) our island may well be the western limit of the ''dumping-ground'' of surplus populations from the Central European plain.

There are stay-at-homes and there are wanderers in every brood of every lepidopteron—probably of every insect; perhaps even of every animal, not excluding Man; for we are here concerned with a trait inherent in all animals, an urge to increase the range of the species and thereby improve the chances of survival. Thus if one part of the original habitat become unfavourable there may be other outlying groups to carry on the race. There is safety not only in numbers but in the wide distribution of the numbers. No one has any idea what proportion these components of a brood bear to one another: the phenomenon is exhibited in even the most social of species—wanderers of the Marsh Fritillary and Chalkhill Blue are constantly being seen or recorded. On the other hand most of us who go sugaring must have noticed at some time or other a scarred Yellow Underwing or Dark Arches which visited a certain sugared tree night after night for perhaps a fortnight. Yet if one could mark every moth on every sugar-patch on a certain night the percentage formed by these marked moths of the total number visiting the sugar on the following and succeeding nights might not be very high and worn unmarked specimens might keep on appearing. The data of this continual coming and going about the habitat, by insects of many orders, has been accumulating for many years. It is a subject for observation which we commend to our readers. P. B. M. A.

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*A possible explanation of the apparent magnification of the moths is that what the observer saw was either the projection of the insects on a cloud (which acted as a magic-lantern screen) or a virtual image reflected from the cloud back to the observer's eye.

Notes and Observations

CAMBRIDGE LEPIDOPTERA: A FURTHER NOTE.—Winter work on identification has brought to light two interesting Pyralids which should have been included in previous Notes (*Ent. Rec.*, **66**: 243 and 276).

Pyrausta nubilalis Hub. One specimen taken 3rd August 1954. This confirms the previous record of a specimen taken in 1952.

Loxostege sticticalis Linn. One specimen taken 3rd August 1954 within the city boundary. This is a Breck area species and not one expected to be found as far away as Cambridge. Previous records for the county are all over 50 years old. Beirne (*British Pyralid and Plume Moths*) states that it is possible that this may be an immigrant which is established in the Breck. It would be of interest to hear of further records from outside the Breck area.—B. O. C. GARDINER, 43 Woodlark Road, Cambridge. 24.i.55.

PYRAUSTA NUBILALIS HUB. IN SURREY.—In connection with the correspondence in the *Record* regarding the occurrence of *P. nubilalis* in Surrey it may be of interest that a worn male of this species entered my m.v. insect trap at Weybridge in July 1951. *P. nubilalis* has recurred here in larger quantities during the three successive seasons and I have noted some thirty specimens in all, practically all males in poor condition. Is it too much to hope that the insect has found some suitable breeding ground and has in fact succeeded in establishing itself in this district?—J. L. MESSENGER, Oakhill, Oatlands Drive, Weybridge. 19.i.55.

COLLECTING LARVAE IN JANUARY, 1955.—Just after the snowy spell of weather this year I went to the North Downs on the 22nd January in search of wintering larvae. The temperature had been 48° F. all day, but dropped 3° or 4° during the evening. A search of an hour and a half showed no more than half a dozen larvae: two *Thalpophila matura* Hufn., two *Triphaena pronuba* L. and two *Amathes xanthographa* Schiff. The following week, on 29th January, the temperature being just over 50° F. and with a very slight intermittent warm rain, I decided this was a night which could not fail to produce a good number of common larvae; but to my amazement only one *Pachetra leucophaea* View. (*sagittigera* Hufn.) half grown, one *T. matura* and about half a dozen *T. pronuba* from small to fully grown and two or three small *A xanthographa* were found during a search of two and a half hours. The results compared with other years were bad. *Apamea basilinea* Schiff. (*sordens* Hufn.), which is always fairly common, was not seen on either occasion. This does not seem to envisage a good collecting year for 1955.—L. E. SAVAGE, 65 Cranmer Avenue, Hove, Sussex. 12.ii.55.

THE MAZARINE BLUE IN ENGLAND.—I think I can claim the last record of capture of *Cyaniris semiargus* Rott. in Great Britain for my late brother, G. B. Kershaw, in late August or early September 1906. It was in a meadow, some way up the stream at Llanbedrog in North Wales, not far from Aberystwyth. His wife drew my brother's attention to a butterfly in a cobweb. He identified it as *semiargus*, and a ♀, and shortly afterwards took a ♂ flying close by, quite fresh. Both specimens are now in my collection. He did not see any others during the rest of his stay.—Colonel S. H. KERSHAW, Alderman's Place, Aspley Heath, Bletchley, Bucks. 21.i.55.

LATE APPEARANCE OF PIERIS BRASSICAE LINN. LARVA.—While collecting Brussels sprouts in the kitchen garden twelve months ago, I found a larva of *Pieris brassicae*. The thermometer had during the previous week (third week in January) registered 10 degrees of frost on more than one occasion. Unfortunately I did not keep the larva but left it on the plant. It was not until I read Mr. N. T. Easton's note (*Entomologist's Record*, **66**: 55) on the late appearance of *P. rapae* and *P. brassicae* that I realised the significance of my find. The reason for this note is that about three weeks ago (9/1/55) after a fairly heavy fall of snow and 2 degrees of frost I found another larva of *P. brassicae* in a similar situation. When taken indoors it appeared lifeless, but frass was seen after 24 hours, and later it was seen feeding. After five days it ceased to feed and lay motionless. Two days later it had pupated successfully without fastening itself at the anal extremity, or the usual silk girdle. From the rather small pupa I am now awaiting the imago.—L. J. EVANS, 73 Warren Hill Road, Birmingham, 23.

EXTERMINATION OF INSECTS BY WHOLESALE SPRAYING.—I have read with interest (*Entomologist's Record*. 1955, **67**: 29) the comments made upon the recent campaign in Cannock Chase to exterminate the ravages of *Bupalus piniaria* there by means of chemicals sprayed from aeroplanes. I am wondering whether the supposed fears of the writer are justified into visualising the simultaneous destruction of many allied species of lepidoptera whose chief pabulum is conifers. I can only quote a parallel case of the plague of the Brown-tail caterpillar (*Euproctis chrysorrhaea*) on Canvey Island where hedgerows of sloe bushes, hawthorn and orchard fruit trees were being completely defoliated by hordes of these larvae. I was to some extent instrumental in interesting the authorities of the Ministry of Agriculture in the problem. Eventually in the spring of 1949 the whole of the affected area was systematically sprayed with a DDT suspension. Within a short time there was hardly a Brown-tail larva alive and since then it has been quite an event to find any active webs. Even these have been controlled each year. But in the place of the Brown-tail quite flourishing colonies of the Small Eggar (*Eriogaster lanestris*) have appeared on the sloes, while the Lackey (*Malacosoma neustria*) and the Figure of Eight (*Episema caeruleocephala*) have tended to do damage to fruit trees. Large numbers of larvae of the Magpie (*Abraxas grossulariata*) now hibernate on the sloe bushes which have also been recolonised by the Sloe Carpet (*Aleucis distinctata*). So this picture of the result of spraying in Canvey Island ought to hold out hope against the forebodings for Cannock Chase. Let us hope that a similar result is produced and that the harmless species will be given a new lease of life.—C. G. M. de Worms, Three Oaks, Shore's Road, Woking, 23.i.55.

Fifty Years Ago

(From *The Entomologist's Record* of 1905)

The Swimming Powers of Arctia Caia.—Having several larvae of *Arctia caia* on hand, and, feeling that as these larvae are often to be found on various low plants at the sides of ditches, some probably at times fall, or are knocked, into the water, I made several experiments with some of my larvae, with a view of ascertaining to what degree (if any) the power of swimming was developed in these larvae. I first placed several nearly full-grown larvae into a trough of water, which larvae immediately curled themselves up (if not already curled up), and floated on the top of the water in this position, seemingly sustained by their hairs. After an interval, varying from about one minute to about a quarter of an hour, the larvae uncurled themselves and attempted to move along the surface of the water, not on their backs, like *Eumorpha elpenor* L. was observed to do by Albin, Hellins, and Harris, but 'right way up'. Some of the larvae, after having uncurled themselves, at first moved the head and tail to and fro, and, in this respect, more or less agreed with what Hellins suggested *E. elpenor* might do. This mode of progression, however, is extremely slow and uncertain, and, in all cases, was given up by the larvae after a short time, but was, however, in some cases, resorted to again, on and off, for a few seconds each time. The rest of the larvae, as soon as they were uncurled, tried to 'walk' on the surface of the water, and with fair success, as, on an average, they progressed about an inch a minute. The larvae which first moved the head and tail to and fro, afterwards followed the example of the rest, and tried to 'walk' on the surface of the water. The larvae, when 'walking' on the water, progress in rather a jerky manner, and a slight arch of the body commences at the posterior and runs along the body to the head, it being most pronounced when at the 1st and 2nd abdominal segments. If the larvae are first completely immersed in the water (which can only be done by holding them under the water) they seem to be only able to get their heads and thoracic segments out of the water until they reach dry land; in this case, they progress by moving the head to and fro, the rate of progression now being, if anything, slightly quicker than in the former case. In one instance, I dropped a larva into water from a height of about ten feet, and it did not sink, the hairs apparently being sufficient to keep the larva from sinking, or becoming totally immersed in the water.

I also placed some larvae in water to see how long they could live in such a position, keeping them in, or rather on, the water for periods of five, ten, fifteen, thirty, and forty-five minutes, and two and ten hours; in each case when the larva was removed from the water it appeared to be none the worse for its swim. Taking the above facts into consideration, it seems that if a larva of *A. caia* happens to fall into water (even from a height of ten feet, or perhaps more) it is not likely it would be drowned, as it is able to remain on the surface of the water for a considerable period, perhaps as long as it could live without food, and has, moreover, the power of swimming of no mean order.—RALEIGH S. SMALLMAN, Wimbledon.

Current Literature

MOTHS. By E. B. Ford, F.R.S. The *New Naturalist* Series: Collins, London, 1955. Demy 8vo. Pp. xx, 266. 32 plates in colour and 24 in monochrome. Price 35s. net. Published 28th February.

Those who have read Dr. Ford's previous volume in this Series, *Butterflies*, published ten years ago, will know what to expect from this present one; for his new book is avowedly the second volume of a completed work.

The format, as becomes this famous publishing house, is most attractive: paper, print and binding are all that one could wish. The colour and monochrome photographs with which the book is lavishly provided, most of them taken specially for the book by Mr. S. Beaufoy, are well reproduced. Mr. Beaufoy is *primus inter pares* in this branch of his art and except in one or two cases (where the green tint preponderates unduly) the engravers have aided and abetted him well.

Dr. Ford is a geneticist first, last, and all the time, and an enthusiastic one to boot; the four chapters on genetics in his book are, consequently, stimulating, informative, and excellent. He has, however, hard things to say about methods of classification which do not take genetics into account. "Decisions based upon the structure of the genitalia, or the neuration, alone are quite worthless", he writes (p. 24). "Furthermore, in most instances no indication is given of the number of individuals that have been studied in order to determine, for example, the anatomy of the normal genital armature of a butterfly or moth. Usually the illustrations are based upon the examination of very few specimens so that an entirely false idea prevails of the constancy of these organs. It is unfortunate that even in recent years an attempt has been made to discuss the basis of classification without taking proper account of the facts of genetics or the requirements of statistics, as has been done by Warren (1947)."

The fact that the aim of this Series is to interest the general reader has faced Dr. Ford with the problem of dealing with such subjects as structure and physiology, dispersal, protective devices, "injurious moths", geographical distribution, types of habitat, relict faunas, geographical races, melanism, and evolution from the genetical standpoint all within the space of about 180 pages. Small wonder that there has been no space left for life-histories. There is also an appendix on classification (which is that of Kloet & Hincks) and an elementary glossary. There is a Bibliography of about 43 papers and books referred to in the text. There are 12 maps showing the distribution of 13 species of macrolepidoptera. The index is adequate and we have not noticed any misprints.

It is difficult to assess the value of this book for the field lepidopterist (who will constitute the great majority of those who buy this book). Being by profession a geneticist, Dr. Ford would have us all become geneticists. Indeed, he makes the reader feel that the man who collects butterflies and moths yet pays no heed to their genetics is merely wasting his time: more, he is throwing away golden opportunities. "I do not believe that collecting", he writes (p. xvii), "at least in its accepted sense, is the best way of studying the Lepidoptera". Again (p. 118): "The man who forms a collection of moths spends much of his time in adding to his series and amassing varieties, too often as mere curios, and has the less to give to observation and experiment" . . . . "But the tendency to go to some locality celebrated for rare insects merely to find them, is pernicious. if we gain no fresh information by this means" (p. 127). Doubtless this is a dogma highly to be praised; but it should not be forgotten that it is the collectors who have supplied our knowledge of the distribution of Lepidoptera in Great Britain. To whom also do we owe our present knowledge of the life-histories of our moths? Is it not to the collectors that we are indebted for the repertory of bionomic facts contained in the pages of the magazines? We hold no brief for the man who catches and kills moths in quantity in order that he may sell or swop them *à la* stamp-collector; but surely such folk constitute but a negligible percentage of the great body of lepidopterists who "collect".

Not the least interesting chapter in the book is that on "Melanism, Industrial and Otherwise". The cause of this phenomenon, Dr. Ford suggests, is a tripartite one. First, melanic specimens enjoy better procrypsis in "the blackened countryside of manufacturing districts". Second, "owing to the general destruction of life in such places, predators will be fewer" and, therefore, the importance of procrypsis less. Third, "a gene which in normal circumstances is only at a slight physiological disadvantage may be at a considerable premium in the unsatisfactory conditions of the soot-begrimed countryside". Rural England, however, presents a somewhat different problem and, unfortunately, we have no space here to follow Dr. Ford's thoughtful and well-reasoned argument. But in order to support a part of his theory he brings forward an observation so remarkable as to compel mention. We quote this observation in full (p. 203): —

"Curiously enough, it is an almost unrecorded event for a bird to pick a moth off a tree-trunk, and, consequently, many entomologists have doubted its occurrence, save in quite exceptional circumstances. Yet were such selective elimination, *and on a large scale* [our italics], not a reality, the explanation of industrial melanism here advanced would be untenable. Indeed, the fact that it takes place *with great frequency* [our italics] was only established by the work of H. B. D. Kettlewell in 1953, and it then became clear why the destruction of moths in this way had not previously been detected.

"In the early summer of that year Kettlewell, working in the experimental aviaries at Cambridge, found that normal and black Peppered Moths were selectively eliminated by Great Titmice, *Parus major*. This was sufficiently promising to warrant an extensive investigation in the field. With the kind permission of the owner, he, therefore. liberated 171 normal Peppered Moths, *betularia*, and 416 of the black form, *carbonaria*, in the Cadbury Bird Reserve, which is affected by smoke-pollution from Birmingham. At that time, the titmice, Paridae, *normally perhaps the most serious predators* [our italics], were otherwise engaged, feeding at the tree-tops on the moth *Tortrix viridana*. Having noted the positions of the Peppered Moths which he had released upon the tree-trunks, Kettlewell watched them from a distance with glasses and saw them destroyed *in large numbers* [our italics] by Robins, *Erithacus rubecula*, and Hedge-Sparrows, *Prunella modularis*. The act of taking each insect was accomplished *with extraordinary rapidity, almost in a flash* [our italics], and could never have been detected without intensive large-scale work of this kind.

''Moreover, Kettlewell had identified each of his specimens with a dot of cellulose paint, but on the underside, so that the marks could not be seen by birds, for this moth rests with outspread wings (Plate xxiii). By the use of mercury-vapour light-traps, Kettlewell was able to recover his marked insects at night, and had the satisfaction of detecting the better survival of *carbonaria* in this area. Out of a total of 584 males released, he recaptured 141 in this way (the females fly but little and, therefore, rarely visit a light). These recaptures consisted of 27.5 per cent of the black moths which had been liberated and 13.0 per cent. of the pale ones. Though much more work of a similar kind remains to be done, the mystery surrounding the selective elimination of normal and melanic Lepidoptera *has thus been solved*'' [our italics].

Plainly there must have been a considerable concentration of both these birds on the spot where the experiment was held, and we are not told, in Dr. Ford's account, how this concentration was effected; we are told only that with his binoculars Dr. Kettlewell actually saw the moths *destroyed in large numbers*. A couple of moths of the size of *A. betularia* would make, for either bird, a meal that would last for an hour or so, and even if the observer watched for ten hours there must have been quite a number of birds at work since the moths were destroyed ''in large numbers''. Moreover, although ''the act of taking each insect was accomplished with extraordinary rapidity, *almost in a flash*'', it is plain that the birds must have made a frontal attack and therefore hovered, even if momentarily, before their prey; for the mechanics of flight would prevent these birds from snatching the moths off the tree-trunks as they flew past. Furthermore, the marked moths were recovered by the use of light-traps and the suggestion appears to be that the difference between the number of moths released and the number of moths caught represented the quantity taken by the robins and hedge-sparrows. Roughly how many constituted the ''large number'' of moths actually seen to be picked off the tree-trunks by the birds? And which species of bird took the greater number of these moths?

This most remarkable experiment by Dr. Kettlewell has apparently not yet been published in detail, for there is no mention in the ''Bibliography'' of a paper by him dated 1953. We hope that he will lose no time in printing it; for not only are the observations of this gifted observer always of value but on this occasion he has given a new orientation to our conceptions of the behaviour of both the robin and the hedge-sparrow.

P. B. M. A.

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Wanted.—Mahogany cabinet, about 20 drawers; Gurney or Brady preferred.—*Clifford Craufurd, Denny, Galloway Road, Bishop's Stortford, Herts.*

Wanted.—Larvae of *Agrotis segetum*, *Euxoa nigricans* and *Triphaena pronuba* for experimental work. Please report to *D. K. McE. Kevan, School of Agriculture, Sutton Bonington, Loughborough, Leics.*

Wanted.—Living female pupae of *Saturnia pavonia* or any other large female pupa (*Laothoe populi*, *Smerinthus ocellata*, etc.) for work on assembling scents. Cash or exchange.—*Dr. H. B. D. Kettlewell, Genetics Laboratory, Department of Zoology, University Museum, Oxford.*

Wanted.—Distribution records in Great Britain and Ireland (especially Ireland) of *Erebia epiphron* Knoch (Small Mounted Ringlet). Localities will be kept secret if so desired.—*Dr. J. F. D. Frazer, Stone House, Boxley, Maidstone, Kent.*

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

(Founded by J. W. TUTT on 15th April 1890).

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Butterflies in Austria

By R. J. R. Levett.

The mountainous region of Tyrol is very interesting to the entomologist, for it has a variety of habitats, each with its characteristic insects. In the valleys and on the lower slopes are the alpine meadows, full of lush grasses, bright flowers, and grasshoppers incessantly chirping. Higher up come the pine forests which are often quite open and have an undergrowth of heather. Above the tree-line are the high pastures which give way to bare limestone cliffs around the summits of the mountains, the snow-line being between 9,000 and 10,000 feet in September. It is surprising how few birds are seen in the meadows and forests—hardly a single bird-song is heard in the pinewoods.

Under the trees are great piles of "needles" made by wood-ants, and several times I saw wood-wasps (*Sirex*) hovering round piles of cut planks. There were also some persistent horse-flies about an inch long, which flew at one with a menacing buzz. Of dragonflies I saw only the *Sympetrum* species: *S. striolatum* (yellow-brown) was the most frequent but I saw several *S. sanguineum* and *S. danae*.

On 1st September I was at Imst, above the Inn Tal. Considering the lateness of the date I was surprised to find so many butterflies still out. Besides the ubiquitous "whites" there were in the meadows *M. jurtina, P. icarus, L. coridon,* which was abundant in small localities, *A. urticae, C. croceus, G. rhamni,* a few *C. hyale,* and the skippers *T. sylvestris* and *H. comma.*

The pinewoods were if anything more prolific; *Erebia aethiops* simply swarmed, while *N. io, P. c-album, C. pamphilus, P. megera* and *O. venata,* and especially *A. paphia,* were more numerous than I have ever seen them in England. *A. cydippe* was less common, and I took two *M. athalia.* A good find was a large dark brown Satyrid with dark blue eye-spots. Almost all these species were seen again at Jenbach on the 8th.

An unfamiliar sight in a lane between the hayfields near Imst was a crowd of *P. icarus* feeding on dung. I should have liked to have taken a photograph of this; but alas, the camera had been left behind in favour of a good supply of pillboxes. *Carpe diem*! I thought; but you can't catch 'em both ways, with net *and* camera.

It was fortunate that I carried a net with me to the top of the chairlift above Obergurgl, for I spotted and managed to net two tiny butterflies there, at 8,600 feet. One is *E. epiphron* and the other is like *M. athalia* only smaller. Another surprise was at Fügen in the Zillertal. I saw what I took to be a tattered white admiral settle on a fence beside an orchard. When I had netted and examined it I found it was *Araschnia levana,* the butterfly which was once introduced into England; the second-brood form *prorsa* is very similar to the white admiral.

Are butterflies attracted to light? I found, sitting on a brightly lit shop window in Imst, a female *Thecla betulae.* It was astonishing the quantity of insects which assembled on the shop windows—not only moths but gnats, caddis-flies, may-flies, and Diptera of all sizes. I noted Noctuids and Geometers, such as *N. c-nigrum, N. rubi, N. xanthographa, N. sobrina, X. monoglypha, P. chi, D. truncata, X.*

fluctuata, *E. alternata*, *E. vulgata*, *E. bistortata*, together with several *Lymantria monacha*, dozens of *H. lupulina*, and several *P. fuliginosa*. This is only a brief list of those identified, but regular collecting with an m.v. lamp would produce far more species, including some not found in Britain.

Day-flying moths included *Plusia gamma* and *Zygaena filipendulae*, as common as in England. In the woods the only moth frequently seen was *Bupalus piniaria*. The best find was alongside the Achensee power works near Jenbach. Here in some overgrown quarries by the roadside I could hardly believe what I saw was real: Jersey Tigers—not just odd ones but plenty—were sitting on flower-heads just waiting to be caught! To the average English collector, unless he lives at Starcross, this was a marvellous stroke of luck to come upon such an attractive insect in such an unexpected spot. I must confess I felt a temptation to repeat the Jersey Tiger Mystery and try to introduce the insect —not in secret, of course—into another part of England!

Three Years' Collecting at Portland

By G. A. **Ford**.

In the course of my (territorially) erratic clerical career I found myself rather unexpectedly stationed on the Island of Portland, Dorset, in charge of the world famous convict-built garrison church of St. Peter, which with the vicarage was situated near the cliff edge and at a high elevation. I had seriously recommenced collecting macrolepidoptera in 1933 and so was thrilled at the prospect offered by my new home, which I occupied from January 1936 to May 1939.

For those readers who do not know the 'island' of Portland I should mention that it is really a peninsula of the coast of Dorset connected with the mainland by a narrow ridge of shingle, the Chesil Beach. The 'island' is about four miles long and nearly a mile and three-quarters across at its widest, having an area of about 2,890 acres. The cliffs are precipitous and the highest point is close upon 500 feet above sea-level. The population in my time was about 12,000.

I hope it is not blameworthy but the fact that I should be alone in the field added to my excitement. I think I am right in saying that at any rate up till very recently (and after my leaving Portland) I am the only living collector who has resided on the island. Colonel Charles Partridge, presumably one of the last governors of the island, once lived at Pennsylvania Castle (the official residence) and seems to have been an active collector round about 1888. Nelson M. Richardson, a great collector and naturalist, lived for a short time on the island before moving to Chickerell, where he died about 1935. His collection is now in the Dorchester Museum and is well worth seeing.

My collecting in the island brought me much pleasure and several disappointments. In order to interpret and appraise the results obtained several matters must be mentioned by way of introduction.

Firstly, disadvantages personal and also peculiar to the island. While I was at Portland I had no portable petrol lamp, and not a great deal of spare time.

Secondly, the island has a very temperate climate; frost and snow are practically unknown; but this advantage is offset by frequent fog, or rather sea mist, on various occasions all the year round; there is also a very strong and prevalent west wind. These two disadvantages, together or separately, spoilt many trips; and if when muffled in an overcoat or mackintosh one descended below the cliffs in the lee of the wind the temperature became overbearing.

There are not many trees, and few shrubs; such as exist are sycamore (plenty), elms, one ash tree only (I think) in my garden (which by 1954 was practically blown to bits—bombing did not assist its growth!), blackthorn, elder, and bramble; that is about all. Don't believe the national press which once announced after a heavy gale that the only tree in the island had been blown down! A visit I paid to the island in the summer of 1954 showed that the trees (all of them) which I knew so well in my time have grown very considerably.

One attraction (to visitors as well as to moths) is the masses of valerian (garden variety) all over the cliffs and old quarries, said to have spread from a former prison governor's garden; but I believe these plants are now decreasing in size and quantity. Many moths are attracted to them.

Thirdly, owing to lack of time, and often to fog or wind, on my "evening out" I rarely visited Chesil Beach—which is now bereft of its telegraph poles (excellent for sugaring!) and a good deal of its vegetation, which has been washed away in the process, I believe, of removing land mines. I did little work on the west side of the island, which, however, is bare and exposed to the prevailing winds, so probably I did not miss much.

Fourthly, one of the disappointments was my failure to use Portland Bill lighthouse as a moth trap. I had it all "in the bag" (the lighthouse keeper's wife of those days was in our Mothers' Union); but my stay here was cut short and the project could not be explored.

Fifthly, owing to the vegetation situation before-mentioned, hosts of "commoners" were completely absent, as for example, to make a selection at random, *Operophtera brumata* L. (one was taken in the last century), *Erannis leucophaearia* Schf., *E. aurantiaria* Hüb., *E. marginaria* Fab., *E. defoliaria* Cl.; but as compensation we had our specialities and they still continue to come (*Leucania l-album* L. reached the island after my departure): *Cucullia absinthii* L., *Sterrha rusticata* Schf., *S. degeneraria* Hüb., *Aporophyla australis* Bdv., *Leucochlaena hispida* Gey., *Rhyacia simulans* Hufn., *Agrotia lunigera* Steph., *A. cinerea* Schf., and the immigrants *Leucania albipuncta* Schf., *L. unipuncta* Haw., *Laphygma exigua* Hüb., *Luperina dumerilii* Dup., *Heliothis peltigera* Schf., and *Caradrina ambigua* Schf. Shortly after my arrival I waded through "South" and the List of Dorset Lepidoptera by W. Parkinson Curtis, but unfortunately at that date the list of Geometers had not yet been published. I was compensated, however, by the opportunity provided of helping in a small way to compile this latter list.

The methods I used for collecting included a moth-trap, which was a self-acting tea-chest, *i.e.* the glass entrance door and illuminant could be closed and switched off respectively by the operation of an ancient but efficient alarm clock. It contained a 100-watt bulb, and the trap was set in an upper floor window facing towards Weymouth, having a completely uninterrupted outlook. Also I used sugar in the garden and sometimes below the east cliffs (East Weares as they are called locally), and bred all the larvae I could find.

I shall always remember Portland for my prizes. These were, firstly, *L. dumerilii*, a single specimen picked off the study window at night among a host of *Luperina testacea* Schf., the fourth of the century I believe. Previous records were 3 in 1858, 3 in 1859, one in 1902, one in 1936 and one in 1937. So I obtained No. 10 of the reported British captures. This moth is possibly not so rare as one might think, at Portland, anyway, for by reason of its lowly companions I should say that it was easily missed. I feel sure though that I never took it in the moth-trap.

The second prize was a fine *L. unipuncta* caught at dusk while flying wildly at the base of the east cliffs—a very lucky shot on my part. And finally the third prize was a large yellow *Callimorpha jacobaeae* L. caught in flight by day in one of the old quarries behind the house. I know of only two other specimens of a like colouration having been taken. Now for some of the "lesser lights".

Cucullia absinthii L. The best or only locality is not, as many collectors in my time seemed to think, in my dairyman's chicken-run on the edge of Easton but anywhere where the foodplant grows—in the old quarries and on the cliffs. I found it in my very small garden.

Sterrha rusticata Schiff. The only locality I know beyond one casual capture at Church Hope Cove is a small area about 20 feet by 3 feet at the base of a certain cliff, where pellitory-of-the-wall grows.

Sterrha degeneraria Hüb. I had to leave the island before I really mastered this species. I took four at light in 1954—one female laid 32 eggs from which I obtained 30 imagos. No hibernation was observed—so convenient! However, while living on the island I took a few very worn specimens in the trap and found another fresh female at rest in grass.

Aporophyla australis Bdv. and *Leucochlaena hispida* Gey. One just can't miss these species at light in the late summer. *Leucania albipuncta* Schiff. I took in the trap and at sugar in the garden. The one and only specimen of *Rhyacia simulans* Hufn. which I took was a dead one in a spider's web in the roof of the vicarage.

Agrotis cinerea Schiff. A few were taken in the trap, but it should come to light on the bare ground about half a mile from the vicarage. *A. lunigera* Steph. was taken in the trap (only worn specimens) and at the above-mentioned valerian, also at light near the cliffs. I consider that the local form emerges earlier than those, for example, in N. Devon and is smaller and duller—a poor looking moth really.

Laphygma exigua Hüb. I came in for the tail end of an invasion and caught several with the light-trap and at dusk in the garden, mainly among the vegetables, being much impeded by my very small cat which would try to assist at all dusking expeditions, trying to catch in his paws everything that flew—amusing but annoying. *Heliothis peltigera* Schiff.: only one at dusk in the garden.

Caradrina ambigua Schiff. was very numerous in the trap and also, if I remember rightly, at privet blossom in the 'Churchyard'—which incidentally contained not graves but a major part of the prison water system. I think the only species of the Noctuae which I missed altogether was *Arenostola morrisii* Dale (*bondii* Knaggs) and I personally have doubts about its occurrence on the island. Other species which I failed to get from Chesil Beach or the island were *Apamea oblonga* Haw. (*abjecta* Hüb.), *Agrotis ripae* Hüb., *Euxoa cursoria* Hufn., *A. vestigialis* Hufn., *Actebia praecox* L., *Heliophobus albicolon* Hüb., and *Dasypolia templi* Thun. and *Leucania vitellina* Hüb. With regard to the latter I once saw a specimen taken from valerian by another collector in my presence.

One of the joys to me was collecting oak eggars. The larvae were numerous on dwarf blackthorn near the sea. They did not indulge in hibernation and fed throughout the winter on blackberry (in captivity). I once found one in the garden feeding on *Euonymus*. Assembling was most amusing: the males came rocketing into the garden, much to the fury of our Aberdeen terrier, a highly bred dog but deficient in wits. He mistook them for sparrows, which he was for ever trying to catch and somehow did so once under the guidance of the afore-mentioned cat. He also specialised in climbing trees.

Night work with a powerful electric torch was sometimes rendered confusing by reason of escaping Borstal boys—when one made a somewhat bigger bag than usual . . . .

On 20th September 1936 after heavy rain I took a red admiral and a small tortoiseshell in the trap.

I never found *Acherontia atropos* L. nor *Celerio livornica* Esp. during my stay but can record the privet hawkmoth—not previously reported from the island.

There is little to report about the butterflies. *Colias croceus* Fourc. was always numerous but hard to catch over the rocks. One f. *helice* was taken. I never saw *C. hyale* L., but ignorance may account for this omission. *Cupido minimus* Fues. was about in small numbers; *Lysandra bellargus* Rott. and *L. coridon* Poda were also resident, as was *Celastrina argiolus* L. but not *Aricia agestis* Schiff. The marbled white was plentiful; the only fritillary present was *Argynnis aglaia* L.

In conclusion a few words about the Geometers. There was not much of note except for *S. rusticata*, *S. degeneraria* and a good number of 'pugs'—*Eupithecia absinthiata* Cl., *E. linariata* Schf., *E. venosata* Fab., *E. distinctaria* H.S., *E. pimpinellata* Hb., *E. haworthiata* Dbld., and *E. valerianata* Hb., the latter new to the island records, but I can vouch for it. *E. innotata* ssp. *fraxinata* Crewe, *E. nanata* Hb., and *Chloroclysta coronata* Hb. also were there. *E. nanata* and *Biston betularia* L. were both taken in the trap (single specimens) and have not been recorded previously from Portland. *Sterrha subsericeata* Haw. and *Scopula marginepunctata* Göze were always numerous. *Horisme tersata* Schiff. and *Gnophos obscurata* Schiff. could be found in their special haunts, the latter nearly always pale specimens, but I took a nice dark one in 1954.

I did not take *Rhodometra sacraria* L. nor *Nycterosea obstipata* Fab., but *Colostygia multistrigaria* Haw. turned up, one spring only, on the study window after dark. I must admit that I saw no signs of several common species recorded for the island.

In conclusion I would ask if anyone can record any more recent incursions of interesting species. I should much like to know whether *Pontia daplidice* L. and *Celerio livornica* L., for example, "hit" the island as soon as I departed.

Macrolepidoptera at a M.V. Lamp in North Cumberland, 1951-1954

By Major-General G. F. JOHNSON.

Sporadically for the last four seasons I have worked a mercury vapour light-trap in a locality in North Cumberland. The locality lies nine miles N.E. of Carlisle and eleven miles from the Border at Gretna. It is on the outskirts of a wood of old hardwoods, mostly oak with a good mixture of ash, beech, wych elm, sycamore and alder, with a few limes and birches. A small river with much butterbur runs at a lower elevation but within three hundred yards of the trap. The surrounding countryside is agricultural with small woods and a large peat moss some one and a half miles away.

Some heavy catches have been made. The record bag was on 25th July 1952 and consisted of 1,824 moths of 88 species, of which 1,037 were *Triphaena pronuba* L. The micros were not counted.

On two occasions Great Tits entered the trap after dawn and were caught amongst the debris of their victims.

The more interesting captures can be grouped under the following heads:—(1) Species near their Northern limit of range in Great Britain; (2) 'Interesting Species', *i.e.* insects usually not too easy to come by but whose range normally covers the Scottish Border; (3) Foreign migrants; (4) Unexpected arrivals from the North.

1. *Species near their Northern limit of range*:—

Drepana binaria Hufn. One ♂, 5.ix.51; one ♀, 30.viii.54.

Tiliacea citrago L. Single specimens, 13.ix.51, 24; 29.viii.53; 3, 10, 15.ix.54.

Hydrelia flammeolaria Hufn. A few specimens, 13th to 28th June 1953.

Cirrhia gilvago Schf. Ten in four years between 28th August and 21st September.

Alcis jubata Thun. Four on 6th August 1951.

Orthosia miniosa Schf. One, 18.iv.53.

Apamea ophiogramma Esp. One, 26.vii.52 and another 30.vii.52.

E. similis Fues. Rare in old Cumberland lists but now very common from 18th July to 4th September.

Polyploca ridens Fab. One on 3.v.53 and another on 17.v.53.

Drymonia ruficornis Hufn. Common from 20th April to 15th May.

Cucullia verbasci L. One—a new record for Cumberland, on 3rd May 1953.

2. *'Interesting Species'*:—

Eumichtis adusta Esp. Apparently rare in North Cumberland. One, 15.vi.53.

Amathes agathina Dup. One, 30.viii.53. No heather for 1½ miles.

Plusia bractea Schf. Not uncommon in ones or twos from 29th June to 13th August.

Odontosia carmelita Esp. Single specimens on 30.iv.52 and 27.iv.54

Celama confusalis HS. One, 11.vi.51.

Harpyia furcula Clerck. One, 19.v.53.

Hadena glauca Hüb. (*bombycina* Hufn.). Odd specimens from 13.v.53 to 22.v.53.

Orthonoma lignata Hüb. Ten specimens between 25th July and 6th September in four years.

Craniophora ligustri Schf. Not uncommon, 10-27.vi.53.

Selenia lunaria Schf. Common, 17th May to 23rd June (35 specimens in 1953).

Aporophyla nigra Haw. Odd specimens from 24th August to 21st September (eight in four years).

Orthosia advena Schf. (*opima* Hüb.). Single specimens on 23rd, 24th April and 10th, 13th May 1951, and on 14.iv.52.

Hydraecia petasitis Dbld. Not uncommon in August and September wandering sometimes from the butterbur.

Anaplectoides prasina Schf. Rather common, 15-29.vi.53 (sixteen specimens).

Bena fagana Fab. Three, 12th-22nd June 1953.

Chesias rufata Fab. One, 13.vii.51.

Arenostola triplasia L. Not uncommon. 13th June to 5th August.

Nonagria typhae Thun. One, 15.viii.52. No reedmace within two miles.

Eustrotia uncula Cl. One, 12.vii.54.

Atethmia xerampelina Esp. Has its years. None in 1954 nor 1952, but thirteen between 18th August and 5th September 1951 and seven between 24th August and 31st August 1953.

3 *Migrants.*

Nycterosea obstipata Fab. Single specimens on 11th and 24th August 1951.

4. *'Arrivals from the North'.*

Eurois occulta L. Two on 28th August and one on 31st August 1954.

Phenomenal Numbers of Rhopalocera Larvae and Imagines

By S. G. Castle Russell.

Many years ago, when butterflies of various species were generally abundant throughout the country, larvae and imagines of certain species occasionally appeared in phenomenal numbers. Frohawk in his *Natural History of British Butterflies* records authenticated instances of abnormally large numbers of *Euphydryas aurinia,* one at Church Stretton, where they swarmed to such an extent that roads and fields covering a large area were blackened by countless thousands, and a similar swarm was observed at Ennis, Co. Clare, Ireland.

Sometime in the early 1930's Sir Charles Langham, a well known entomologist in Ireland who used to visit this country in order to collect with me, wrote and told me of an instance of phenomenal abundance of *E. aurinia* in a village close to his own demesne of Tempo Manor, Co. Fermanagh, Ireland. The villagers were alarmed at the immense numbers of caterpillars in the village and sent to Sir Charles to advise them what to do in the matter as they feared the destruction of their crops. Accordingly he visited the place and found the village and a large area of adjacent ground, on which was an abundance of devil's bit scabious, and various crops covered with immense numbers of *E. aurinia* in various sizes, the majority being full grown. Each of the cottages was surrounded by banks of peat which had been erected in a futile effort to keep the caterpillars out of the rooms. Sir Charles told the villagers that nothing of any effect could now be done but that within a week or so all the caterpillars would have changed into chrysalids and butterflies. He added that no harm would happen to the crops, etc., as the caterpillars would only eat the common weed known as the devil's bit scabious or honeysuckle.

The episode of this swarm of caterpillars got about, and at last it reached the ears of a Member of Parliament who mentioned the matter in the House of Commons and another member undertook to make enquiries. He got into touch with Sir Charles Langham and asked him to investigate the matter. In due course Sir Charles sent him a reassuring report on the incident, which was communicated to the House and reported in the daily newspapers. Although I remember reading about the matter in the *Morning Post* I have quite forgotten the date.

More than fifty years ago I was fortunate enough to witness a similar instance of phenomenal numbers of *E. aurinia*. Wishing to acquire a series of this species to add to my collection, I was informed that I could find the larvae on a certain hill on the Wiltshire Downs in early May. The locality was some six miles from the nearest station and to get to the spot I had to hire a pony trap (no motor-cars were then available). On arrival we found a wide road at the foot of the hill black with live and dead full-fed larvae through which horse traffic, chiefly farm carts, occasionally passed. The whole of the hillside from top to bottom was black with the larvae as were also all the surrounding scabious fields. It was impossible to walk anywhere without treading on numbers of larvae. It was a most imposing sight and one I have never forgotten.

I also witnessed a vast swarm of the Large White, *Pieris brassicae*, when, one spring, I was staying at the Royal Sandrock Hotel at Niton, I. of Wight. One evening a lady called at the hotel and said that she had been told there was an entomologist staying there and that she would like to see him. I was accordingly notified and accompanied her to her house. The garden and some three acres of cabbage crops had been devastated by an immense swarm of the larvae which had stripped the whole area bare and were walking about full-fed searching for places to pupate. All the rooms in the house were full of the caterpillars which had even penetrated the beds and inside them. It was really an unpleasant sight and to the inmates a disgusting one. There was nothing I could do to assist in the matter except point out that within a few days all the caterpillars would have turned into pupae, the great majority of which would be killed by ichneumons. Of course very large numbers of *P. brassicae* occasionally occur in all districts as is well known, but the one I have mentioned was exceptional.

As regards phenomenal numbers of butterflies I have seen three such. At Aldershot in 1887 in a wood nearby there was a large open copse which was full of small birch trees on each of which there was such a swarm of *Thecla quercus* that with two sweeps of the net on one particular tree I could catch fully a hundred of the butterflies. Although this species can often be seen, especially in the New Forest, in large numbers sitting on the bracken, etc., the area in which they occur is usually very limited in extent.

The other species concerned was *Celestrina argiolus.* On one occasion in the spring during the 1890's the holly trees on the borders of Holmsley Enclosure, New Forest, were each surrounded by hundreds of the butterflies of which there were vast numbers. On the second occasion in early August in an enclosure near Brook in the Forest there were phenomenal numbers of the same species. This was very unusual as many of the old time collectors used to assert that the Forest never produced a second brood. This, however, was not true and I invariably met with examples every autumn.

In this last instance I met with a well-known member of the South London Entomological Society who was working for aberrations, and judging from those he showed me he had been very successful. He remarked that never in his long experience had he met with such large numbers. At the time I was more interested in looking over the large fritillaries, which were in very great abundance also. Since then I have met with *C. argiolus* in large numbers in Kent, especially in the Rochester district in the spring and autumn.

Notes on the Maple-Eating Prominents

By H. Symes, M.A.

These two species, *Lophopteryx cucullina* Schiff. and *Ptilophora plumigera* Schiff., have little in common except their food-plant. They differ widely in their appearance, in the time of year when the imago is to be found, and in their life cycle: *L. cucullina* passes the winter as a pupa and *P. plumigera* as an egg. The larvae, too, are very dissimilar: *cucullina* resembles *Notodonta dromedarius* L. and *N. ziczac* L. in having humps on its back, while *plumigera* has no humps and in its penultimate instar closely resembles, in my opinion, the larva of *Drymonia ruficornis* Hufn. at the same stage, though when the larvae are full-grown there is less similarity, as *plumigera* assumes a powdery grey colour. I have found larvae of *cucullina* extremely easy to rear and have had hardly any casualties among my pupae, whereas *plumigera* is much more tricky and one is lucky to obtain moths from more than 50% of one's larvae. The normal food-plant of the larvae of these two species is maple (*Acer campestre* L.), but they have both been found on sycamore (*Acer psuedo-platanus* L.). Most of the localities where they occur are in chalk or limestone country, and nearly all are south of the Thames. Larvae of *cucullina*, however, have been found in some numbers on sycamore near Cambridge, as recorded by Mr. W. H. Storey (*Ent. Rec.*, **65**: 324) and the imago has been taken at light by Mr. W. Reid at Castor Hanglands, Northants. (*Ent. Rec.*, **63**: 184). This must be about the northern limit for the species.

During the 1930's I used to find the eggs and young larvae of *cucullina* regularly in a locality on the southern slopes of the Chilterns, overlooking the Thames valley. As far as I know, the species did not occur on the Berkshire side of the river. The maples were small bushes growing in the dense shade of tall beech trees, where the sun's rays never penetrated, and the maple leaves were of a thin, papery texture. Yet these larvae thrive equally well under totally different conditions on the slopes of the Kentish downs, exposed to the full glare of the sun, where the maple leaves are thick and leathery.

The eggs are laid on the underside of the leaves, singly or in twos and occasionally threes, and the young larvae feed at first on the lower cuticle of the leaf. I often noticed an empty eggshell and a small patch where the young larva had been feeding for perhaps a day or two, but no sign of the larva itself, a very sluggish creature at this stage, on the original leaf or anywhere near it. I have no doubt that these larvae had been eaten by a small greenish-white spider, which was only too common on these maple bushes. I remember that one year more than 50% of the hatched eggs I found had no larva near them. One memorable day, 15th July 1933 (a hot summer) I found eggs, larvae and imago, a female in perfect condition: this is the only imago I have ever taken. Other dates were: 1931 (a wet summer), 26th July, eggs; 1932, 21st July, eggs and larvae; 1933, 12th July, eggs; 1934, 15th July, eggs and larvae; 1935, 13th July, eggs; 1936, 8th July, eggs. I found it an easy species to rear from the egg.

In East Kent *cucullina* is found in the same localities as *P. plumigera*. When searching for larvae of the latter near Wye on 30th May 1949 I found a solitary egg which turned out to be that of *cucullina*. The larva completed its growth and pupated among moss in a small box during the second week in July, and when I opened the box three or four weeks later I found to my surprise and disgust that the moth had emerged and was still alive, but had had no room to expand its wings. This is the only time I have ever had a specimen of the second brood. The 30th May was an exceptionally early date to find an egg—the earliest date on which I have had a moth emerge in captivity is 4th June—and 1949 was a fine, hot summer. In the *Proceedings of the S. London Ent. Soc.* for 1952-3, p. 45, Mr. H. S. Robinson reports having taken a specimen of the second brood on 22nd August 1952.

Other localities from which *cucullina* has been recorded in recent years are Eynsford in West Kent, and somewhere in West Sussex. In the Cotswolds I was once shown a wood near Guiting where larvae had been found.

My acquaintance with the larva of *P. plumigera* has been made in two localities in East Kent, where it occurs rather commonly, and in one very restricted area in Cranborne Chase, Dorset, where it is scarce. The maples in all these localities were growing on a hillside with a southerly aspect, or in a valley at the foot of a slope facing south. In Cranborne Chase there is at least one other colony, and probably more.

The moth comes freely to light, but I have never taken it in this way. One evening in November 1951 Dr. H. King took me to Cranborne Chase, where we met Capt. R. A. Jackson. The weather seemed favourable enough when we left Bournemouth, but after we had passed through Blandford a nasty white mist began to rise from the hollows, and although we placed our lamps and sheets close to some maples on which larvae had been found earlier in the year, not a moth appeared.

P. plumigera, like *L. cucullina*, is established on the southern slopes of the Chilterns, but not in the same locality. I remember reading in an old entomological journal that many years ago—fifty at least—the species was so abundant in the Marlow district that some schoolboys took a large biscuit tin full of the larvae to a local entomologist for identification. I have never heard of a haul like this being made in recent years: the largest number I have ever obtained in a single day was fourteen, in East Kent.

Another locality for *plumigera* is in the Cotswolds, near Cirencester. Here the moth has been taken by Mr. Austin Richardson, but the larva has not yet been found. A series of this Gloucestershire race shown by Mr. Richardson at the South London exhibition in 1952 was composed of moths much larger and brighter than the Kent race. Specimens of the Dorset race in my possession seem to me to be intermediate between the other two. The males at any rate are more strongly marked than Kent specimens, but there does not seem to be much difference between the females. I have not seen any specimens from the Chilterns, but I am told that they approximate to the Kent form.

The larvae, which always rest on the underside of a leaf, may be obtained either by beating or by searching, and should be sought at the end of May and the beginning of June. I have found them only on maple, but a larva was found by the Rev. F. M. B. Carr on sycamore near Wye, Kent, in 1949, when he was sheltering from the rain under a tree. There is also reason to believe that the larvae of the Cirencester race may feed on sycamore. Like all the Prominents, they feed up very rapidly. In my experience they are much harder to rear than those of *cucullina*, and even if they form healthy pupae there are likely to be more losses in this stage. In 1949 I obtained twenty-six larvae in East Kent, of which eighteen pupated, but only eight moths resulted. Five or six pupae from which moths did not emerge looked so healthy that I wondered if they were going over for a second year, as is quite often the case with some of the Notodontidae, such as *Notodonta anceps* Göze, *Odontosia carmelita* Esp. and *Drymonia ruficornis* Hufn. The first time I bred these species I had about ten pupae of each, and the number of moths that emerged the first year was 1, 0 and 2 respectively. This was most disappointing, but I kept the pupae carefully, and nearly all the moths emerged safely in the following year. I must add that this happened in different years, so that it was not due to the climatic conditions of one particular season. But I had no such luck with *plumigera*, and when I eventually opened the pupae a year later most of them contained fully-formed, dried-up moths, which had probably been in that state for twelve months.

Results in other years have been as follows: 1951, 4 larvae from Cranborne Chase, Dorset, from which 2 moths were bred; 1952, 8 larvae (Dorset), 5 moths (1 deformed); 1953, 4 larvae (Dorset), 3 moths; 1954, 9 larvae (E. Kent), 6 moths, and from 2 larvae (Dorset) kindly given to me by Dr. King, 1 moth. Thus from a total number of fifty-three larvae I have bred twenty-five moths. It seems rather strange that larvae were scarce both in E. Kent and in Dorset this year (1954), as the weather in November 1953 was exceptionally fine and mild, and favourable, one would suppose, for mating.

The earliest date when moths have emerged in my cages is 5th November (1952), and the latest, 1st December (1954). The time of emergence is in the middle of the day, between 11 a.m. and 2.30 p.m.

It seems to be very difficult to get the moths to pair in captivity. About fifteen years ago the late W. H. Jackson bred a number of moths and made several attempts to obtain a pairing, but without success, and I had the same experience in 1949.

An Entomologist in Argentina

XII. Neuquén

By KENNETH J. HAYWARD, D.Sc. (Hon.), F.R.E.S.

We arrived on a windless morning and spent it calling on the local representative of the Ministry of Agriculture who took us over to Cipoletti, a trip which allowed us to appreciate the intensity with which fruit growing was being undertaken in the valley, especially pears and apples.

It was perhaps too much to expect it to remain calm all day, and when after lunch we left for a sight-seeing trip a fierce gale was blowing that at times rocked the car. Looking down from the hills behind the town, instead of a fine view of the valley we saw only a cauldron of swirling dust and it was not till we dropped down to the poplar lined roads of the small agricultural colony of Centenario that we found any shelter. Here in places the roadside was bordered with *Baccharis* and in spite of the difficulty of collecting from wildly waving flower-heads, we managed to secure a few insects, and I am sure that had it been possible to revisit this spot under more favourable conditions, we should have been well repaid for our trouble.

The following day the gale continued, its fury unabated, and since it was hopeless to try to work in any exposed area, we walked to the river Neuquén where the banks were high and covered with thick scrub, thinking that perhaps we might find some shelter, but even here the few insects we captured were found hiding amongst the matted vegetation near the ground. In the afternoon we visited a wild spot near the river Limay some distance from the town, but although it proved a most interesting place, untouched except for such modifications as had been caused by grazing cattle, the wind interfered with our collecting. However, I saw for the first time several plants quite unknown to me previously.

The river Limay is a fast flowing stream of crystal clear water and is the outflow of lake Nahuel Huapí, uniting just below Neuquén with the river of that name to form the Río Negro. It by-passes the town a little to the south and here there were a number of deep hollows surrounded by thickets and weeping willows and containing water received either by infiltration or in time of flood. These ponds were shady and full of immature aquatic life and the haunt of dragon and damsel flies. The presence of abundant water and undergrowth attracted many birds, and hares and other animals came to feed on the lush grasses. It proved to be the most interesting of our collecting grounds, not only for the insects we found but because it offered a change from the continual collecting over arid xerophilous deserts that had been our lot since leaving Bahia Blanca. At Neuquén our only alternative was the exposed hill-slope behind the town where there was little vegetation and the flowers mostly different species of yellow daisies and where there were few insects other than the coloured buprestid beetles I have mentioned in a previous note. Although not yet blooming, I found here and there, as later at Zapala, specimens of a *Pterocactus*, a cactus that grows from a tuber in which it stores up moisture against dry periods, the aerial plant being about the thickness of a one-inch rope and trailing over the ground. I once collected one of these tubers in La Rioja and putting it on a shelf forgot it, till one day some months later I found it had thrown out a two-inch shoot and was about to flower.

From Neuquén we proceeded directly by train to Zapala which is a little over 3,300 feet in altitude and 480 miles west of Bahia Blanca and the present railhead.

A few miles beyond Neuquén the line once more begins to traverse desert and this extends right up to the Andes. At first there is a low *meseta* to the north, but this soon disappears and until nearing Zapala the country is flat and for the most part covered with *campa*, a grey sage-like plant of the *Chenopodiaceae*; but in one extensive area even this was absent and as far as one could see there was nothing but sun-cracked earth, destitute of any vestige of plant life. Around Plaza Huincul there is an extensive oilfield and one sees many derricks scattered over the landscape, but otherwise there is nothing to attract attention until when near Zapala, where the railway enters a narrow gorge that gives access to a broad valley which in its turn merges into the flat western plain. In this valley were large patches of the ubiquitous yellow daisies and of a tall coarse grass, which latter gave shelter to many small birds, probably fringillids. There were also smooth green lawn-like patches that I thought at first were bogs but which later proved to be areas formed by a *Mulinum* which although it boasts extensive woody roots seldom grows more than an inch in height.

Zapala has an evil reputation for its winds and whenever we had complained of wind in Río Colorado or Choele Choel we were told to wait till we reached Zapala! True to its reputation on the evening of our arrival it greeted us with a hurricane that hurled in our faces dust and grit and even small stones, but strange to say thereafter left us in comparative peace during the four days we remained there. What is even more remarkable, we experienced another calm period when we again stayed here on our way back, though on this occasion also, we arrived in a hurricane of wind and dust. The air of Zapala was as invigorating as that of any sea coast town and we were treated to glorious sunny weather and remarkable visibility, the snow capped Chilean cordillera 115 miles further west beyond a gently undulating plain standing out etched clearly against the blue sky.

The great sandy expanse where we did our collecting had in some places drifted into dunes, and in certain low lying areas there were patches of grassland with areas of the dwarf *Mulinum* already mentioned. The higher slopes were mostly crowned by low *mesetas* of volcanic rock and over most of this desert there was a sparse scattering of low bushes that did not exceed a foot in height, kept to this low stature by the winds. Strikingly outstanding in this area are the tens of thousands of small round clumps of *neneo* (*Mulinum spinosum*) which form the chief feature of the landscape. This slightly aromatic plant, which as its name denotes is prickly, grows in subcircular clumps so compact that not even the smallest rodent can hope to pass through them. It played a great part, as will be shown later, in the success of our collecting. By the roadsides a pink *Malva* was flowering and there was a grey foliaged *Senecio* on which we occasionally found *Pseudomelöe* beetles, but the only other plants that attracted insects were the many species of yellow daisies. A *Maihenia* cactus grew here and there, but even this hardy plant seemed to find life difficult as many had perished.

This was my first experience of this type of country and our first morning, a Sunday, produced only a couple of dozen common flies caught round dung. There is, however, a technique for collecting in this area which we were fortunate enough to stumble on quite accidentally during the afternoon. Insects seemed so scarce that every one counted and when I lost a beetle that fell into a clump of *neneo* I was determined to recapture it and proceeded to demolish the bush by the simple method of kicking it to pieces; luckily the *neneo* is very brittle To my surprise when I began to search amongst the ruins for my specimen I found many others, and further investigation showed that this was where they sheltered. Soon both myself and Dr. Willink were busy taking apart the *neneo* clumps, sometimes with no luck for not every bush harboured insects, those with insects being seemingly grouped together in small areas. I should add that this *Mulinum* grows right down to the ground, the sand below being ground to a fine powder with the continual movement of the plant caused by the wind. The beetles harboured were for the most part black tenebrionids (of which we took more than twenty species) and a large curculionid. The discovery of the hiding place of these insects enabled us to collect an average of over nine hundred and fifty insects per day at a time when there was practically nothing on the wing. On warm sunny days the beetles would leave their shelter and venture forth, crawling about the sand where they left a tiny trail of footprints, but mostly we had to seek them beneath the *neneo*.

Here at Zapala we began to notice the influence of the Chilean fauna which became more pronounced later on at San Martín de los Andes where the dividing boundary between the two countries is much lower. At Zapala too I found several interesting wingless hymenopterons and for the first time became acquainted with the evil smelling *Anisomorpha crassa* (Orthoptera) whose odour is little less than suffocating, and should one be accidentally stepped on is repellent to the extreme: I can compare it only to that at times provided by a skunk.

Sometimes after working up the slopes and reaching a small *meseta* I would sit for awhile on its platform-like edge, for the rock of which they were formed rose but a foot or so above the sand. Here I would rest and marvel at the immensity of solitude and desolation spread out below me in all its vastness. On one of these *mesetas* great quantities of yellow daisies had found roothold in the earth-filled crevices, and made a glorious golden splash against the ferruginous brown of the volcanic rock. When the sun dropped behind the mountains and suddenly withdrew its warmth, these daisies would slowly close their radial flowers as though drawing their cloaks about them.

From Zapala we turned due south, taking the bus to San Martín de los Andes, an eleven hour journey parallel to the cordillera. For some time we traversed desert, dropping here and there into green valleys with their small sheep farms and crystal streams and at one place, just before we reached the Picún Leufú or 'river of the north', the road ran through a dantesque jumble of cliffs and mounds and gullies of soft rock of many different colours, hurled together in chaotic disorder by some upheaval of the past. To our right were the high Andes and like a sentinel before them stood the cone of mount Lanín (12,300 ft.), the Fujiyama of the cordillera, immaculate in a white mantle of freshly fallen snow.

At Catán Lil we stopped for lunch and I took note that one day we should return for it promised interesting collecting, and when we continued our journey it was through more friendly country, following shallow valleys on whose containing slopes bright splashes of yellow or deeper orange showed where cacti were in flower. It was reasonably calm but on the higher ground the clumps of *Stipa* grass bowed permanently towards the west showed the influence of prevailing winds. We crossed the wide Aluminé or 'shining within' (*i.e.* crystal clear) and then before Junín de los Andes the still wider Chimehuin, and so came to the last moments of our journey. It was not, however, till we were but three or four miles from our destination and topped the rise that we saw below us Lake Lacar lying like a Norwegian fjord with San Martín at its head, the northern hills clothed with dense *Nothofagus* forest, the southern more open with grassland between the clumps of cypress and rocky outcrop.

We spent fifteen days in this delightful spot and as our knowledge of the country widened and the spring advanced, we began to take as many insects daily as we could comfortably handle. Spring had come late with little sun and now everything was bursting into bloom at once and the gardens and forest were bright with colour. In the woods were yellow *Viola*, and everlasting sweet peas held court for the big honey coloured bumble bees, and there were anemones and banks of *Calceolaria* and strange ground orchids. Sometimes it rained and the surrounding hills would for a time be white with snow and often we had frosts, when the first hours of the morning would be spent in turning over stones and fallen branches, our fingers numbed with cold. Generally we started the day on the northern slopes amongst the giant *Nothofagus*, leaving the more open southern hills for the afternoon, when the *Yramea* fritillaries and the small hesperiids and other butterflies would be a-wing amongst the flowers. Here and there patches of scarlet amongst the verdure showed where the *notro* (*Embothrium coccineum*) was in flower, but this bush had no attraction for insects. Where we found the spiny *Colletia* with its masses of small creamy waxlike blossoms we were content, for it attracted untold numbers of tiny iridescent bees and wasps, beetles and flies and many other insects, so that we had only to air-sweep over the bushes or hold a net beneath them and sharply rap the branches and then sit down and sort the spoil.

Lake Lacar is some twenty miles long and about a mile wide, lying deep amongst the mountains. It is joined at its western end to the small Lake Nonthue by a narrow channel and at the far end of this latter is Hua Hum, a tiny sawmill village where I spent an entrancing five days whilst Dr. Willink was collecting further to the south at Correntoso near Bariloche. Hua Hum boasted a small wooden hotel and never have I stayed in any cleaner and every day our tables were decorated with small vases of fresh-plucked wild flowers. In the evenings when I came in tired from the woods I would sit awhile in the little garden that sloped down to the lake. Here were the flowers of the old Somerset garden of my youth, many of which I had not seen for more than thirty years, and whilst I rested, the shadows would grow longer and the last patches of sun-light steal wearily up the mountainsides till at last only the topmost peaks were bathed in light.

The village was only a mile from the Chilean border which is reached by a rough woodland road that passes first through the cleared fields and then through forest. Parallel and but a short distance away is the river Hua Hum that unites Lake Nonthue with the Chilean Pirehueico, so clear that the bottom is easily seen through fifteen feet of water. At first it flows deep and silent but near the border it is joined by the joyous tumbling Lipinza and its aspect changes and it races foaming over a boulder strewn bed and throws its roaring music far back into the forest.

In Arucanian Hua Hum signifies a place of much dampness, and the name is well applied since the annual rainfall is about a hundred and twenty inches. Sometimes it rains for weeks on end and I was no doubt lucky in only losing part of my first afternoon and most of my last day through this cause. There was much *Colletia* in flower and so loaded with insects, for the most part beetles, that after a short time I was compelled to select only those of greater interest as I found it quite impossible to deal with the enormous numbers that fell into the net when I beat the bushes. Even so I packed more than six thousand specimens in the four days I was able to collect.

I spent most of my time in the flower strewn fields or along the edge of the clearings and here I caught for the first time *Vanessa terpsichore* and the southern *Colias*, *vautherii*, which unlike many of the other *Colias* has no yellow female, all being white. In one place more than an acre of wild strawberries were in flower. These were the *Fragaria chilensis* whose fruit is three or four times as large as that of the wild strawberries of Britain. Hares were common and very tame and one morning whilst sitting on a log at the edge of a clearing waiting for the sun to dry the dew, I watched seven of them at play, nor did they take the slightest notice of me even when I moved; on yet another occasion one allowed me to approach its form and pick it up.

In the *Nothofagus* forest I found fewer insects, but searching under bark revealed considerable numbers of cerambycid larvae which promised future abundance of adults. Since my visit I have received much material from this district that was certainly not flying when I was there and I believe that January and February would be better months for some future visit.

When our time came to return, we travelled again by bus, leaving San Martín at daybreak after a night of rain that left the hills around us white with snow and turned the cordillera to a fairyland. We remained four days in Zapala and found more insects flying than during our first visit, especially a *Hylephila* skipper that I mistook for the common *phyleus* but which my friend Brigadier Evans says is a new species, and a pretty little noctuid, also new. The discovery of a dead mule by the wayside on our last morning provided many necrophagous beetles and enabled us to boost our total for the trip to slightly over thirty-seven thousand insects, which taking into consideration the desert nature of most of the collecting grounds was a reasonable return for our efforts.

From Zapala we returned direct to Buenos Aires before continuing our journey back to Tucumán by way of Mendoza where we spent a month, and La Rioja.

(To be continued.)

COLEOPTERA

Notes on the Distribution of *Osphya bipunctata* (F.) Col. Melandryidae

By F. A. Hunter, B.A., F.R.E.S.

Whilst I was living in Cambridge I made several collecting trips to woodlands on the boulder clay in the vicinty. As a result of the collecting done on these occasions I formed the opinion that *Osphya bipunctata* (F.) was a fairly common, if local, insect throughout the area. A friend of mine who has worked the New Forest and the woods of Kent and Sussex for many years had previously told me that he regarded the species as uncommon. On consulting the literature my first impression was that Cambridge together with Monk's Wood in Huntingdonshire was the stronghold of the species and that its occurrence was sporadic elsewhere. Further study has, however, led me to believe that it is more widely spread than I at first thought.

The adult beetle is easy enough to capture by beating hawthorn blossoms, and so on, but under differing weather conditions its numbers in any locality seem to vary. At the height of the hawthorn blossom time in Madingley Wood, Cambridge, the beetle was present in profusion on warm sunny days, but was scarcely to be found on the dull days.

In the "Handbook for the Identification of British Insects", Vol. v, Part 9, F. D. Buck records *Osphya bipunctata* (F.) from the following counties: Kent, Essex, Cambridge, Hunts, Yorks, Gloucs. H. K. Airy Shaw (1946, *Ent. Mon. Mag.*, **82**: 14) records it from Gloucestershire. It is also recorded from Epping Forest, by H. W. Forster (1952, *Ent. Mon. Mag.*, **151**, p. 164). D. Tozer records it as "Rather common" in Monk's Wood (1947, *Ent. Mon. Mag.*, **86**, p. 47) whence it is often reported. Fowler (1891, *Col. Brit. Isl.*) mentions as localities: Monk's Wood, Hunts.; Windsor, Berks; Weston-on-the-Green, Oxon.; Scarborough, Yorks.; Chattenden Roughs; Cheltenham, Glos.; Coddenham, Suffolk; and Peterborough, Northants. In addition to these records, H. St. J. K. Donisthorpe (1939, "A Preliminary List of the Coleoptera of Windsor Forest") gives two records of Stephens, for Windsor.

Osphya bipunctata (F.) has then been recorded from the following counties: Yorkshire, Northamptonshire, Suffolk, Cambridgeshire, Essex, Kent, Berkshire, Oxfordshire, and Gloucestershire. The majority if not all of these localities are in areas of old deciduous woodland on chalky soil. These records tend to suggest a continuous range along the chalky land in the south of England, with stronger colonies where older woodlands are to be found. This picture is at present spoilt only by the absence of any records from Herts and Bucks; perhaps some readers may be able to supply these?

Previous records seem to report the beetle only from hawthorn or whitethorn blossom, but in Cambridgeshire I have found it equally common on *Viburnum lantana* and *Viburnum opulus*, and on the field Maple, *Acer campestre*.

In the Cambridgeshire localities, wherever sufficient numbers are to be found, there is a range of variety from very small to the size of the larger Cantharids, which this insect superficially resembles when seen on flowers. The smaller males are usually without swollen femora, these being the more noticeable the larger the beetle. The sexes are, however, easily separated by their colour, the males being much blacker.

REFERENCES.

F. D. BUCK, 1954. Handbooks for the Identification of British Insects, Vol. v Part 9, page 8.
D. TOZER, 1947. *Ent. Mon. Mag.*, **86**, p. 47.
H. W. FORSTER, 1952. *Ent. Mon. Mag.*, **91**, p. 164.
H. H. FOWLER, 1891. *Col. Brit. Isl.*, V, p. 48, and 1913, *ibid.*, VI, p. 297.
H. ST. J. K. DONISTHORPE, 1939. "Prelim. List Col. Windsor For.", p. 97.
H. K. Airy Shaw, 1946. *Ent. Mon. Mag.*, **82**, p. 14.

A NOTE ON PYROCHROA COCCINEA L.—Further to Mr. Fincher's record of a specimen of the above species near Monmouth (*antea*: 69), I would remark that it is common in the woods in the neighbourhood of that town, where in May 1945 I found the larvae in large numbers and of various sizes, under the bark of oak, beech, and birch stumps, whilst on a brief visit in search of *Dictyopterus cosnardi* Chevr. (Two other interesting and local species may be mentioned as occurring there: the handsome 'bee-chafer', *Trichius fasciatus* L., purely northern and western with us, whose larvae live in the wood-mould of old birch stumps; and the Longicorn, *Judolia cerambyciformis* Schrk., with like colour-scheme, in plenty on umbelliferous flowers on the outskirts of the woods.)

Although, as Mr. Fincher says, Joy described *P. coccinea* as very local, it is really much commoner than this implies over a large area of the south. Its headquarters is a broad zone roughly bounded by E. Berks., W. Sussex, S. Hants, S. Wales, and Herefs. Outside this, and notably east of it, the species does occur but far more locally; it appears to have a slight western bias though as yet I have not heard of it from the Cornish peninsula. In Kent, it is known to me only from two or three places in the western division, the chief being Darenth Wood whence it has long been recorded; it can still be found there, but sparingly. It is remarkable that Fowler, writing as late—relatively speaking—as 1891 (*Col. Brit. Isl.*, **5**: 64) could cite no more than five localities, and of these the four English ones had been given by Stephens over fifty years previously! Even in the supplementary volume (1913) only one other was added. Yet such a strikingly showy and large insect as this *Pyrochroa* could hardly have been overlooked in many places, had it been as plentiful then as it is to-day in some of them, being moreover diurnal and not at all retiring; even though the adult life is short compared with that of the larva which consequently is more often seen in the ordinary course of collecting than the beetle. My conjecture is that intensive tree-felling from the first world war onwards has favoured the species by greatly multiplying suitable larval habitats (stumps and dead trunks) and so perhaps brought about its increase. As it is primarily a denizen of forest and park land it does not commonly mingle with the more widespread *P. serraticornis* Scop., which tends to prefer such places as lanes, spinneys, hedgerows and corners of fields, and whose early stages are passed under bark of stumps (and fallen boughs) of elm, ash, willow, etc. Incidentally, Stephens seems to have had a better eye for colour than many later authors, for he did attempt to express, albeit inadequately, the quite different shade of red in these two cardinal-beetles—a point very seldom noticed in modern works.—A. A. ALLEN, 63 Blackheath Park, S.E.3. 27.ii.55.

STENOSTOLA FERREA (SCHRANK) AND OTHER CERAMBYCIDS NEAR HARROGATE, WEST YORKS.—On 2nd July 1954 I visited a large wood near Harrogate. The weather was very dull and cloudy, although it did not actually rain. The ground vegetation was mostly too wet to use a sweeping net, so I confined my attention to the trees, which were drier. The trees I worked were mainly birch and sallow, with much scrubby vegetation and brambles beneath. It was whilst sweeping a sallow that I discovered a single specimen of this beetle in my net. Protracted searches on all the surrounding trees failed to produce any further specimen. This same wood several days later yielded a number of *Strangalia maculata* Poda from flowerheads.

The many pinewoods near Harrogate are attacked by *Rhagium bifasciatum* F., which is extremely common in some areas. One day in mid-January, when the snow was about six inches deep, I dug some adults of this species out from a pine stump! Also near Harrogate I have discovered *Pogonochaerus hispidus* (L.); *Rhagium mordax* (De G.); *Grammoptera ruficornis* (F.).—F. A. HUNTER, 3 The Grove, Harrogate.

DIPTERA

Flies associated with Cow Dung

By B. R. LAURENCE.

Flies as well as beetles are well known to be attracted to dung, and the orange or yellow males of *Scatophaga* (*Scopeuma*) *stercoraria* L. are a familiar sight in spring and autumn crowded together on the surface of cow pats. A large number of flies breed in these pats of dung but many are more secretive in their habits and members of more than twenty families of Diptera are known to be associated with cow dung during the larval stages. Hammer (1941, *Vidensk. Medd. Dansk. naturh. Foren.*, **105**: 1-257) has studied in detail the behaviour of the adult flies in the field in Denmark but his work is not readily available in this country. Records of the species of flies breeding in cow pats, and of the inhabitants of the pats at Rothamsted, Herts., have been given previously (1953, *Ent. mon. Mag.*, **89**: 281-283; 1954, *J. anim. Ecol.*, **23**: 234-260). Most of the observations recorded here were made at Rothamsted.

Most flies, like the beetles, are attracted only to the fresh dung, one to two days old, and as the cow pat ages rapidly and soon becomes unattractive to most flies for oviposition, the adults must be mobile and capable of following the herd about the field, and from field to field, to obtain fresh dung. Females of *Lyperosia*, the horn fly, feed upon the blood of the animal that deposits the faeces and consequently are bound to follow the herd. These females are the first flies to arrive at the fresh dropping (Hammer, 1941). The sweat flies belonging to the genera *Musca, Morellia* and *Hydrotaea* also follow cattle for food but are less dependant on the animals and do feed on other media such as nectar. These species are often very common in woodland away from the field, and in my experience only the females are attracted by sweat.

Some of the other Muscidae can be found in the field with the cattle, feeding on liquid fresh dung (*Mesembrina, Dasyphora, Hebecnema* and *Polietes*), but these genera are less dependant on the cattle for food and are more conspicuous around the edges of the field or in woodland, resting in the sun on tree trunks and palings, or feeding on flowers. *Polietes* appears to feed mostly on dung, however. Numbers of female *Dasyphora* at Rothamsted feed in the spring on laurel flowers, the flowering of the bushes coinciding with the emergence of the adults from hibernation. Adults of *Musca autumnalis* Deg. also overwinter and both species were found in a swarm of hibernating flies in the clock tower of Rothamsted Manor on 11th March 1952. A small part of this swarm consisted of 2 ♂♂, 2 ♀♀ *Dasyphora*, 3 ♂♂ 2♀♀ *Musca*, 30 ♀♀ *Limnophora humilis* Zett., 1 ♂ 12 ♀♀ *Pollenia*, 208 ♂♂, 180 ♀♀ *Chloropisca*, and 34 ♀♀ of the Chalcid *Stenomalus muscarum* L. with 1 ♀ of *Necremnus leucarthrus* Thoms. (det. G. J. Kerrich). Females of *M. autumnalis* appear to overwinter with undeveloped ovaries, a fact also noticed by Hammer in Denmark. In twenty females dissected in April 1950 only two had the ovaries at all developed, whereas thirteen out of twenty-two female *Dasyphora* dissected at the same time had mature ovaries. Both species emerged from hibernation on the same day.

There are also differences in the places of congregation of the males of the Muscidae at the edges of the field or in woodland. A number of species such as *Musca, Mesembrina* and *Polietes* congregate mainly on vertical surfaces such as posts, tree trunks and garden ornaments. In contrast males of *Hylemyia strigosa* F. congregate on the leaves of shrubs, and males of *Hydrotaea* form swarms in the air beneath trees.

Of the Nematocera associated with the dung only ovipositing females appear to visit the fresh pat. Large numbers of *Psychoda phalaenoides* L. can be found visiting the dung in October and November but only one male, from an old pat, was recorded amongst 188 females. This species is well known to visit the flowers of *Arum maculatum* L. in the spring. It appears that only the sexually mature female searches for the fresh cow dung in the field. Males visiting the dung are also very rare in the other species of *Psychoda* reared from the dung, although females of these species are surprisingly uncommon on the pats during the day. Males are also rare on the dung in the genera *Rhyphus, Trichocera, Culicoides, Scatopse* and in the family Chironomidae. Females of *Trichocera* are also rare on the dung during the day compared with the abundance of larvae found later in the pat, and this genus may oviposit mostly at night. Swarms of male *Rhyphus, Trichocera* and *Smittia* (*Hydrobaenus*) *aterrimus* Mg. can be found in sheltered places and as with most of the Muscidae mating takes place away from the actual field in which the cows are pastured. One exception is the Chironomid

Camptocladius stercorarius Deg., males of which in the summer may form small swarms over rather old pats, presumably orientating to an outstanding object in the manner of other Chironomids and not reacting to the smell of the dung.

The Stratiomyids, such as *Geosargus* and *Microchrysa*, the Empid *Ocydromia*, and the hover flies visiting the pat seem always to be female and most of the adult life must be spent away from the field, as it certainly is with the Syrphid *Rhingia campestris* Mg.

As a large number of the adult flies do not usually frequent the field in which the cows live, except for the purpose of oviposition, it is not surprising to find few coprophilous flies in the Dipterous population inhabiting the herb layer of the meadow. Sweep net samples, using a special net so that the whole catch could be killed and counted, taken on three days in June 1950 in a field inhabited by cows, showed that the cow dung flies accounted for only 8·17% of a total of 2,491 flies captured in the meadows. Over 75% of the total were Opomyzids, Chloropids, Ephydrids, Agromyzids and Lonchaeids, mostly associated in the larval stage with the grasses and other herbs of the meadow. The most frequent coprophilous species were *Scatophaga*, *Hylemyia variata* Fall., Sepsidae and Sphaeroceridae. *Scatophaga* and some species of the Sepsidae mate on or near the pat, and this would account for the relatively large numbers of these captured. The same by analogy should be true of *Hylemyia variata*, but this species has not been observed on, or bred from, the dung many times. Unlike the other Muscidae males of *H. variata* are as common as the females in the meadows. Only certain species of the Sepsidae mate on the dung. Males of *Sepsis cynipsea* L. occur most abundantly on one day old pats (up to 24 hours old) and are rare on older pats. This species is also the only fly on the dung of which the male remains with the female during oviposition, clasping the wing bases of the female with its front legs, and with its middle legs occasionally tapping the body of the female as she walks over the pat ovipositing. *Pandora* (*Saltella*) *scutellaris* Fall. mates on dung which is one to three days old and is rare on older dung, whereas *Sepsis pilipes* v. d. Wulp males are most common on pats from two to eight days old, indulging in a pretty mating dance around, and always facing, the female on the dry surface of the pat. Males of other *Sepsis* species are rare on the dung and mating must take place somewhere away from the pat. Both sexes of species of *Sepsis* are occasionally reported in large numbers on shrubs, but these large swarms do not appear to be common.

Although *Scatophaga* congregate on the dung in spring and autumn the whole adult life is not spent in the field. Larsen and Thomsen (1940, *Vidensk. Medd. Dansk. naturh. Foren.*, **104**: 1-75) give a pre-oviposition life of fourteen days for *S. stercoraria* L. and Cotterell (1920, *Proc. zool. Soc. Lond.*, 1920: 629-647) estimates a period of three weeks, during which period the adult is predaceous on other insects or may feed on nectar. The fly begins to catch other insects almost immediately on emergence and the type of prey recorded (Hobby, 1931, *Trans. ent. Soc. S. Engl*, **7**: 35-39, Parmenter, 1937, *London Nat.*, 1937: 51-54) indicates that during the preoviposition period *Scatophaga* may range over a wide area away from the field. *Scatophaga* adults may frequently be found catching prey in woodland.

The numbers of Sphaeroceridae captured by sweeping show that the species are frequent in the grass around the pats of dung. In a number of these flies, and also in the Empid *Drapetis*, the adult appears to spend most of its life on, in, or under the pat. The most coprophilous of all the flies associated with the cow pat are some species of *Limosina* such as *L. lugubris* Hal and *L. collini* Richards, and the Empid *Drapetis nigritella* Zett. The adults of these species are associated with cow dung of all ages up to about 15 days old in the summer, living inside beetle tunnels, feeding and mating on the dung. These adults are not able to tolerate low humidities in the summer and soon die if kept away from dung in an empty stoppered small glass tube.

Thus despite the fact that the adults of the flies which live in the cow pat in the larval stage have to be mobile so as to follow the herd, every condition can be found in adult behaviour from independence from the herd during adult life except for oviposition, to dependance on the herd for adult food, and in some species even for the adult habitat.

Current Notes*

It was Moses Harris (in his *Aurelian*, 1766) who recorded that the first two specimens of *Nymphalis antiopa* L. to be caught in England "were taken about the middle of August 1748 in Cool Arbour Lane near Camberwell". A note by a writer in *The Field* of 10th February last seems to suggest that someone is going to try, this coming summer (if it comes), to reintroduce *antiopa* into that ancient habitat. We commend the note to our readers' amusement: here it is, wing-borders and all:—"The news that several hundred specimens of the Camberwell Beauty butterfly are to be released in Camberwell this summer reminds me that this insect is rarely seen in this country, let alone in that corner of London after which it was named. The wing borders of the original English variety are white, whilst on those from the Continent they are almost cream. There is, I believe, a story that a collector once covered the cream borders of some foreign specimens with white paint, and claimed them to be the highly prized variety from this country. It was not until very many years later that the fake was discovered. We shall now at least, be very wary of any extravagant claims next summer." Dare we suggest that the writer has got hold of the wrong end of the stick as regards habitat no less than wing-borders and that the liberation of these *antiopa* is to be nearer Ludgate Circus than Camberwell?

A cutting from the London *Daily Express* of 28th February has been sent to us. It contains the heading CHASING A MOTH UP A MOONBEAM. Then follow ten paragraphs by the "Express Science Reporter" which begin:—"Two men have been going up in a balloon at night to find out if the moon attracts moths like a candle flame. And already they have counted three flying at 1,000 ft. on a moonlight night." The two aeronauts, we are told, were "59-year-old Professor Alister Clavering Hardy and Dr. Edmund Brisco Ford, 53, of Oxford University's zoology department." The adventure story (for such it was evidently intended to be) continued:—"The R.A.F. loaned the balloon, which is kept tethered to the ground, and the two dons are to continue their ascents. They are testing a theory that moths fly to an artificial light because they mistake it for the moon. Professor Hardy thinks that moths may have developed the habit of flying up towards the moon millions of years ago, before there were any artificial lights to mislead them." Finally we are informed that "an artificial light will attract some moths from a distance of at least 100 ft."

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*These Notes are by the Assistant Editor.

Recently a sub-editor of *The Times*, in skittish mood, wrote STEEPLE CHASE at the head of an article on the depredations of woodpeckers in certain of the Home Counties. The birds have riddled with holes the shingled spires of churches, and the parishioners concerned have either to chase the birds off the steeples or foot the bill for repairs—in some cases a matter of several hundred pounds. The delinquent appears to be the Green Woodpecker and the attacks on the churches began, it seems, in 1949. No question of sectarianism is involved: *Picus viridis* L. is concerned, in this matter, only with food, and the food which he is after is—Diptera. Enquiries have brought to light an interesting fact—that 17 out of 20 damaged spires are situated in farming districts where pest control has been freely practised. The woodpeckers, it is suggested, have taken to tapping the spires because of an acute shortage of food lower down. The technique is to drill between the shingles, at the top of the lap, and, when a hole has been made, to rattle the top shingle; whereupon the sticky tongue of *P. viridis* gathers the sleepy flies that crawl out. Simple, and effective—to the tune of £600 on one steeple alone.

Mr. E. S. A. Baynes records (*Irish Naturalist*, January 1955) an apparent migration of the dragonfly *Sympetrum danae* Sulzer observed at Tory Island lighthouse, Co. Donegal, on the night of 6th September 1954. The direction of flight was north-west, the numbers seen being estimated at "dozens" at a time and collectively "hundreds". The insects were also seen during daylight and a search revealed that they were on the higher ground only, none being found in the neighbourhood of a nearby lake. A movement of the same species was observed on the night of 11th September. This record is of especial interest because, "though the species has been suspected of being a migrant, this is the first direct evidence".

In his paper in our March issue Dr. Kevan remarked that the mole-cricket "would appear to be a very adaptable insect". A recent issue of the *Bull. Soc. ent. Fr.* (**59**: 12) records *Gryllotalpa gryllotalpa* from Béni Abbès in the Sahara, south of the Atlas Mountains. An insect which can inhabit a bog in the New Forest as well as the torrid ground of the Sahara must be adaptable indeed.

We learn from a contempory (*A.E.S. Bulletin*, March 1955) that the Marbled White (*Melanargia galathea* L.) still manages to hold its own in Essex. Writing in 1893 C. G. Barrett remarked "it continues plentiful in many parts of Essex", but the present century brought a decline in its numbers in that county and by 1910 many of its ancient haunts knew it no more. Mr. R. Scott now records it as "extremely abundant'' at South Benfleet and in large numbers at Hackley Woods near Rayleigh, some six miles inland, and there are reports of it extending as far eastwards as Leigh-on-Sea. Claude Morley (*Lep. of Suffolk*) asserted in 1937 that ''for the last seventy years it has certainly been extinct in Suffolk''. It is to be hoped that some Essex wanderers may repopulate the neighbouring county presently.

The Nature Conservancy continues to ''declare'' new Nature Reserves. The latest is ''the largest and most important landslip area on the coast of Britain'', namely the undercliffs between Axmouth (Devon) and Lyme Regis (Dorset). In 1939 a landslip occurred in this area when nearly 8,000,000 tons of rock subsided from a cliff 375 feet high, leaving a chasm a mile long ranging from 200 to 400 feet across. This Reserve extends for five and a quarter miles and covers 708 acres, and although chiefly of interest to geologists we are told that ''interesting birds and butterflies are also to be found but have so far been little studied''. We should like to know the names of the ''interesting butterflies''.

In a lecture on the virus diseases of plants recently given at a London institution the lecturer ended with these words:—''Many of the problems in controlling virus diseases would be overcome by the discovery of a persistent substance that either kills insects immediately they alight or acts as a repellant and prevents them from even settling on plants. It is a tall order, but one worth trying to fill . . . .'' It is not difficult to foresee what would happen should this dream of the pest-controller materialize. But perhaps by the time our fields and hedges and woods have been ''treated'' against insects this island may have become urbanized to such an extent that the extinction of butterflies (to mention only one order of insects) will pass unnoticed.—''Woods'' did we say? Yes, woods.—''The attempts yet made to control virus diseases in trees by insecticides have not been promising, but that does not mean that methods will not be found. . . . with the development of persistent insecticides the position is altering rapidly.'' So we may yet attain that golden age of the pest-controller when every timber tree in the country will be ''certain death'' to any and every insect that alights upon it. And then what will the little birds do?

We cull the following entomological note from a pleasant book about a Devon village—*Under Dartmoor Hills*, by D. St. Leger Gordon (1954): —''An example of natural history knowledge in a rural community was provided last autumn by a privet hawk-moth caterpillar found by someone who'd never 'see'd such a thing before'. We heard that it was on its way to us, and vivid descriptions of the wonder creature preceded its appearance. But these were sufficiently extravagant—particularly in the matter of size—to baffle all attempts at classification in advance. Doubt even existed as to whether it were reptile, mammal or fowl, insect not being suspected. According to report, it was as big as a sausage, had neither feathers nor fur, but just a 'little ole skin', and was likened to a rhinoceros with a 'kind o' horn'. The description fitted nothing at all—not even the Loch Ness monster. It was not until some hours later when the creature actually arrived, housed in a jam-jar with a cabbage leaf for sustenance, that the mystery was solved.

The general comment was: "Us lives and learns sure enough". The highlight of the episode from a natural history standpoint, however, was supplied by one interested observer, who after a long survey of the 'monster', sagely remarked: "I reckon it carries a light on its tail night-times".

Notes on Life-Histories, &c.

A friend asked us if we had ever searched for, and found, the eggs of the Grayling butterfly (*Satyrus semele* L.), and when we replied that we had no recollection of ever having done so he went on to quote a writer in this magazine who asserted that the egg of *S. semele* is always laid on the top of a broken dead grass-stem. None of our textbooks making mention of this we looked up the reference. It is in the issue for January 1907, vol. 19, p. 23, and the recorder was no less a lepidopterist than G. T. Bethune-Baker. He observed a ♀ *semele* ovipositing in the wild and watched her closely. "She settled restlessly, and then felt up a green blade of grass with the tip of her abdomen . . . the green blade did not suit her and she came to a last year's broken stem, up which she again felt with her abdomen, and then on the very top of the stem she placed her egg, this process happened each time I tracked a female down. I never noticed her hit on a dried stem the first time, but she always oviposited on the very tip of a broken, dried-up blade". We believe this procedure to be unusual. Have any of our readers witnessed a similar behaviour?

We have heard it said that the larvae of the Marsh Fritillary (*Melitaea aurinia* Rott.) are more easily reared in confinement on honeysuckle than on scabious. For our part we have reared this species on both these foodplants and do not recollect having had any difficulty with either. Apparently these larvae will eat both foodplants indifferently, for we have read of full-grown larvae being found on honeysuckle eight feet from the ground at the side of a scabious-covered bog wherein they had been bred. It is also said that one of the old-time collectors who was famous for the aberrations of *M. aurinia* which he bred used to collect the wild larvae from scabious when they were nearly full-grown and put them at once on honeysuckle. This procedure, he claimed, was the secret of his success. Unfortunately he omitted to explain how the change of foodplant affected the genes.

With respect to the note attached to Mr. Symes's paper on *Brachionycha sphinx* Hufn. in the February issue of this magazine (page 52) we have come across the following by E. F. Studd of Exeter in the *Record* of 15th February 1896 (vol. 7, p. 234):—"I may add that the total number of males taken between November 6th and November 28th, in two illuminated traps, set within a few hundred yards of each other in the same wood, was 207 . . . . I obtained no females this year. Last year I took about the same number of males and two females. I beat several larvae this year from apple and oak, principally the former, the leaves of which they seem to prefer to any other food, except other larvae (of their own species or any other), which they will eat directly.

They all throve until full-fed, and then died off, very few pupating, and of these none emerged, but all died." Which bears out the necessity for supplying the larvae of this species with only succulent foliage, with nightly spraying of the foodplant, and with a good depth of well compacted pupating compost, not more than two larvae being allowed to 'go down' in a 48-size flowerpot. If these conditions are observed *B. sphinx* will be found to offer no difficulty to the rearer who accommodates his larvae in moderately sized hygienic cages and treats them as a farmer treats his prize-winning stock.

Egg-laying and habitat selection in some *Pieris* species are dealt with in a paper (in English) by Bjorn Petersen in *Entomologisk Tidskrift* (Stockholm), **75**: 194-203. The species observed were *P. napi*, *P. bryoniae*, *P. brassicae* and *P. manni*, and the observations were made in the Alps in 1954. After noticing the difference in flight between searching for food and seeking sites for oviposition Petersen asserts that orientation by the odour of the foodplant is not very good and the appropriate plant is found rather by trial and error. The scent of the foodplant stimulates the butterfly to alight on it, usually on a leaf, and its nature is tested by a few tapping movements of the forelegs. Wrong orientation, close to the correct plant, was observed 8 to 10 times in succession. There is much of interest in this paper on the effect of light on both oviposition and choice of habitats. Egg-laying during cloudy weather was found to be quite abnormal. Daily rhythm, sleep, and territorial behaviour are also discussed.

The January issue of *Entomologische Berichten* (Amsterdam) contains (pp. 273-278) an interesting paper (in English) by L. G. E. Kalshoven on the giant Elaterid beetle *Oxynopterus mucronatus* Ol., which is a predator of termites in Java and is 70 mm. in length. The larvae of this beetle enter the burrows of the termites and "grip the large *Neotermes* in the abdomen or behind the head; in the latter case the victims were rapidly killed," and eaten. It is not at all difficult for them to overcome the termite 'soldiers', although the latter attack them. In captivity they showed a remarkable capacity for eating termites, one specimen, 19 mm. long, ate 1,190 large *Neotermes* larvae in the first five months (maximum 23 a day), growing to 40 mm. in that time, and during the succeeding nine months it killed and consumed 3,070 'workers' (maximum 55 a day), finishing with 70 in a day. These larvae are eaten by the Javanese as an aphrodisiac and command as much as 25 cents each, "which was equal to the price of a chicken large enough for two persons".

Notes and Observations

EUSTROTIA OLIVANA SCHIFF. IN SUSSEX.—Somewhat belatedly I wish to call attention to the capture at m.v. light of a single specimen of *Eustrotia olivana* Schiff. (*argentula* Hub.) at Hailsham, Sussex, on 25th May 1953. The area worked was of a somewhat marshy nature but not the true marshland with which the insect is usually associated. It would be interesting to know if this is a new record for the county and if anyone can throw any light on its unexpected appearance; *e.g.*

have any local collectors "imported" specimens from its more usual habitats? It may be mentioned that the night of 25th May was particularly productive, with many good singletons together with the highly numerous assemblage of moths. I have not had an opportunity of revisiting the area since.—S. COXEY, 203 Green Lane, Bolton. 1.iii.55.

A NOTE ON STERRHA RUSTICATA SCHIFF.—With regard to Mr. A. J. Showler's article in the February issue of the *Record* concerning the distribution of *Sterrha rusticata* Schiff., I venture to bring to his notice two further records which appear to have escaped his attention. Donovan in his *Catalogue of the Macrolepidoptera of Ireland* has the following reference: "Of very doubtful standing. The two records 'Birchall's "Killarney, Dr. Battersby" and Kane's "Two or three at Clonbrock, Co. Galway (R.E.D.)" do not merit serious attention." Examining these old records, Kane's is doubtless an error. R.E.D. are the initials of the Hon. R. E. Dillon and it is common knowledge that few of his Clonbrock records deserve serious attention. The Birchall record, on the other hand, may be quite genuine. The original reference is to be found in *Ent. mon. Mag.* for July 1866, and it appears that the specimen was captured by Dr. W. E. Battersby and recorded for him by Birchall. There are records of other rare moths captured by Dr. Battersby, which are accepted; so I see no logical reason why this record should be condemned entirely. Although Killarney is the locality given, in reality the place of capture was probably Caragh Lake, much nearer the coast. Dr. Battersby had a residence by this lake for several years. I think this Kerry record is far more probable than that from St. Kilda. There are certain moths which are found in the southern counties of both England and Ireland.—R. F. HAYNES, 29 Fairfield Drive, Dorking, Surrey. 24.ii.55.

FORMS OF COSYMBIA PUNCTARIA L.—I notice that Dr. E. B. Ford at the top of page 56 of his recent book *Moths* states in effect that the form of *Cosymbia punctaria* L. with blotches in the distal area of the fore-wings does not occur in first brood specimens. I have in my collection a specimen with "blotches" taken by me here on 24th May 1953 on the same day as a specimen without "blotches". The time of capture would appear to indicate that both specimens were of the first brood, particularly as the form with blotches is not absolutely fresh. I wonder what is the explanation of this occurrence. Could the blotched form possibly have been a migrant from a warmer climate? —C. S. H. BLATHWAYT, 27 South Road, Weston-super-Mare. 10.iii.55.

HIBERNATION OF POLYCHRISIA MONETA FAB.—As regards the hibernation of the larva of *Polychrisia moneta* Fab., A. Brants has written a full life history with splendid plates in *Nederlandsche Vlinders* (which should have been the third series of Sepp, but was never completed). On page 54 (1908) he writes that the young larva early in the autumn (then only a few centimetres long and very slender) creeps downwards to seek a sheltered place for hibernation at the root-crown or between the small leaves of the new shoots of *Aconitum* which are developing there already. Brants did not know then, however, that a second brood also occurs in Holland. Of course this is only partial. It must develop on late flowering Delphiniums, I suppose.—B. J. Lempke, Oude Yselstraat 12iii, Amsterdam—Z.2. 1.iii.55.

Difference between Adjacent Colonies of Euphydryas aurinia Rott.—Last summer I discovered the Marsh Fritillary (*Euphydryas aurinia*) near here in two spots which were a mere quarter of a mile apart, being separated only by a small copse. I naturally concluded that they were parts of a single colony. However, I noticed very quickly, with surprise, that in one colony the insects were brighter coloured than in the other. The distance between the colonies being so small it seems astonishing that they did not mix.—E. E. Johnson, Highfield House, Guildford, Surrey. 1.ii.55.

Cannibalism in Larvae.—The question of cannibalism in larvae is intriguing and I am sure puzzling even to many advanced collectors who have done a fair amount of breeding. What is most striking is the paucity of information on the subject given in the standard books. In the February issue of the *Record* a paper is quoted written fifty years ago and mentioning nine species (all moths) as "avowed" cannibals. Of these nine species only two are given as cannibals by South and by Newman & Leeds: and these two are *Cosmia trapezina* L. and *Eupsilia transversa* Hufn., whose sinning is known even to schoolboy collectors. Everyone who in early youth pored over Edward Newman's tome knows the sad story of the *satellitia* (as we called it then) which ate up Mr. Hellins's 57 *populeti*!

One is forced to believe that in addition to the most chronic offenders quite a number of species are occasional cannibals. As regards the "avowed" cannibals listed by this writer of 1905, may I make a few comments based on my own rather sporadic and limited experience?

Polyploca ridens: I have several times had a few and a couple of years ago about twenty. I saw no sign of cannibalism.

Orthosia miniosa is of course a horror: but neither in the standard works nor in that invaluable book *Practical Hints* (which contains advice on breeding it) is there a word about its cannibalistic habits. I lost quite a number as lately as 1946 through ignorance of them.

Orthosia gracilis (listed as an oak-feeder: this is news to me). I have twice kept about a dozen and saw no sign of cannibalism.

Amphipyra pyramidea: I did not know this was a cannibal, but I have had very few. A few years ago I had what I took to be a very small *pyramidea* in a small box with a young *Poecilocampa populi*. The *populi* quickly disappeared, and the supposed *pyramidea* proved in fact to be *Brachionycha sphinx*: but if what I now read is true it might as well have been *pyramidea*!

Of *Graptolitha ornitopus*, *Lithophane socia* and *Crocallis elinguaria* I have had but few larvae: I had evidence against *ornitopus* but not the other two.

As for *Brachionycha sphinx*, I have had a few sent to me in their last skin and their conduct was immaculate; I had taken good care to give them plenty of space and fresh food.

The writer of 1905 should have included *Orthosia munda*, a known cannibal and stated to be such by Newman & Leeds.

I have read of presumed cannibalism in *Colotois pennaria* and also a denial of such; but Mr. H. E. Hammond puts it beyond doubt that this larva is at least an occasional cannibal: he has "caught them at it after dark".

Generally speaking the cannibal Noctuae have had all the publicity, and the troublesome cannibals among small Geometer larvae (presumably because less frequently bred) have had little or no attention paid to them: *Lobophora sexalisata*, *L. carpinata*, *Chloroclysta siterata*, and no doubt there are others. A few years ago I lost a number of tiny larvae of *Anagoga pulveraria*, and there could be no explanation but cannibalism, of which I had not dreamed.

I have read that the young larvae of *Pheosia gnoma* are cannibalistic, and though one hates to breathe a word against that decorative pet the larva of *Notodonta ziczac*, the fact remains that certainly twice, and I think three times, I have had three or four young larvae of this species in a small box and one of them has disappeared. I also once noted the disappearance of two small *Smerinthus ocellata* which were housed with a larger *Scoliopteryx libatrix*.

I have had no experience of breeding butterfly larvae, and know of cannibalism among them only from reading.

I cannot help feeling that only the fringe of this question has been touched, and that someone who would breed numbers of species simply in order to study cannibalism would achieve most interesting results and note quite a number of "occasional" offenders.—F. H. Lyon, Green Headland, Sampford Peverell, Tiverton, Devon. 7.iii.55.

Cannibalism in Larvae.—With reference to the observations on this subject in the February number of the Record (**67**: 61) I have not found *Orthosia gracilis* Schf. to be a cannibal. A few years ago I collected about thirty larvae of the red form (var. *rufescens* Cockerel) of this species from the shoots of bog myrtle (*Myrica gale* L.) near Brockenhurst, Hants. Several of the larvae proved to have been 'stung', but from the remainder I bred, not "only one specimen, usually a large female", but a nice series of nineteen moths. There had certainly been no cannibalism. Is it possible that the larvae of the red form of *O. gracilis* are less prone to cannibalism than the ordinary form, which I have never reared, or is it just another case of a libellous generalization against a species?

I have often kept larvae of *Polyploca ridens* Fab. and never had a single cannibal amongst them, and I can say the same of *Orthosia miniosa* Schiff. Nests of the young larvae of this species are often to be seen in a rather flimsy web at the end of succulent young shoots of scrub oak in the New Forest, and in captivity there is nothing that they enjoy more than an oak 'apple', the larger the better. The larvae will burrow right into this until only their posteriors are visible, and feed until nothing is left but a hollow shell.

Cosmia trapezina L. is unquestionably a monster of depravity: I have often seen it seize another larva in the beating-tray and start eating its victim before one had time to intervene.

Another larva which I believe to be cannibal is *Catocala sponsa* L. I once had about a dozen smallish larvae of this species in two glass-topped metal boxes, and the number gradually dwindled to five or six. Escape was impossible, they were too large to have been thrown out by mistake when their food was changed, and I could see no other possible explanation but cannibalism. I hope I am not casting an unjustified aspersion on this handsome species.—H. Symes, 52 Lowther Road, Bournemouth. 20.ii.55.

Cannibalism in Larvae.—Frankly, I am not yet convinced that cannibalism *in the wild* has yet been proved. In the case of a carnivorous larva such as *Chilodes maritima* Tausch. it is quite probable, but hardly proved; its natural food may well be confined to other orders of insects, slugs, etc., which may be sheltering in the dead reeds.

I personally have never proved cannibalism even in captivity except in the single case of my first attempt to breed *Nycterosea obstipata* Fab. on an unsuitable foodplant, garden chrysanthemum. My second attempt, *ab ovo*, on knotgrass was 100% successful.

Being a highly unsuccessful breeder of Lepidoptera I have had appalling losses of all types, but only in that one case, where small tins were used, can I be certain of cannibalism, and that was due entirely to the foodplant. Is not a far more likely cause in other cases of progressive loss of a brood the undetected presence of a foul dermapteron?

Lastly, *Orthosia gracilis* Schiff. This is one of the few species which I have bred *ab ovo* with great success. When I lived in Sussex I found that this species oviposited, and presumably fed, on the old seed-heads of Fleabane; but acting on the advice of that great breeder of the Agrotidae Mr. Wightman of Pulborough, I supplied succulent willow leaves, not sallow. Apart from a few first instar losses due to carelessness I had no trouble at all. Incidentally, I fancy that the writer of fifty years ago who listed *O. gracilis* among his "avowed" cannibals could not have been a very reliable guide, since he asserted that this species feeds on *oak*.—G. W. Harper, Neadaich, Newtonmore, Inverness-shire. 19.ii.55.

Haworth's Lepidoptera Britannica.—I was interested to read in Current Notes in the March *Record* the comments upon Junk's copy of Haworth's *Lepidoptera Britannica*. I happen to posses this book bound up in one volume and also in separate parts as issued. While the paper in the bound volume is thin and poor, I think that in the separate parts it is certainly of better quality. In my volumes this is most marked in the first volume or part, published in 1803, of which the paper and printing are really good.

Although I have never heard anyone make such a suggestion, it does seem possible that the bound volume may have been reprinted as a single volume from the original type-set. This may perhaps explain the printing, in the 4th part, on the reverse of page 512, which goes " Lepidoptera Britannica / Part IV" whereas in the bound volume this reverse is occupied by Page 511, *i.e.* the last printed page of part 3.—Lionel Higgins, Gracious Pond Farm, Chobham, Surrey. 12.iii.55.

The Care of Cabinets.—A recently acquired 40-drawer cabinet was delivered with the carcase and drawers separate, but each drawer was clearly marked with the number on the back of the cover and the base, and underneath. Efforts to put them in, however, were unavailing in a few cases, and in many were so stiff as to be dangerous to contents. Eventually it transpired that some of the elder craftsmen numbered the drawers starting with number One on the top Right, and number

Twenty-one on the top Left, and this is the case with mine, so this note is made to save possible trouble for a brother entomologist.

Repapering drawers and store boxes takes time and some skill, but the use of 'Ceilingite' obviates this and is economical, overcomes stains, fills pin-holes, and dries dead white, takes but a few minutes and is easy.—W. Bowater, 41 Calthorpe Road, Edgbaston, Birmingham, 15.

Some Comments on Dr. E. B. Ford's Book "Moths".—The review of this most instructive and stimulating work in the March *Record* prompts me to add some further remarks.

It was hardly to be expected that the encyclopaedic title on the cover would be realised by a very comprehensive survey within, but the complete dismissal of the "micros" by a few words in the preface is an astonishing limitation, quite contrary to the scientific spirit which inspires the work, and another great opportunity lost to stimulate interest in these neglected families. Even the appendix on classification is restricted to the "macros", and, incidentally, perpetuates two curious errors from Kloet and Hincks (1945); on page 232 the suborder *Homoneura*, the most primitive moths, are placed first but followed immediately by the most specialized of the *Heteroneura*, which then work back to the most primitive—if the *Homoneura* are to be placed first, then the order of the *Heteroneura* should be reversed; on page 237 the *Endromididae* are separated from the *Lasiocampidae* into a separate superfamily *Lasiocampoidea*, leaving *Lasiocampidae* in *Bombycoidea*—if they are to be so separated (and there seems little reason for this) then obviously *Lasiocampidae* must be in *Lasiocampoidea*—but this mistake was corrected in the authors' corrigenda and should not have been repeated here.

My other point of criticism concerns the distributions of some of the species mentioned. It is rather a difficult task to sort out the distribution of many of our "macros" from the mass of literature, but surely this could have been done correctly for those few species for which distribution maps are given. The range shown for four of these species should be extended as follows:—

Entephria caesiata (Map 2): should be extended throughout the mountainous districts of Wales and into Hereford, N. Devon, and Somerset (Exmoor).

Ortholitha bipunctaria (Map 8): should be shown on limestone in N. Wales, Yorkshire, Durham and Northumberland.

Panaxia dominula (Map 10): occurs in N. Cardigan, Merioneth and Montgomery.

Drepana binaria (Map 11): should be extended as far as Cheshire, Flint and Montgomery.

Other smaller inaccuracies occur in the text, and one for which the author cannot be held responsible deserves mention: on p. 156 *Eulype subhastata* is described as 'widespread in Scotland, and has been taken even as far south as North Wales'. This is certainly not the case, as many of the records of this species have been found to refer to small forms of *E. hastata*. I have only heard of authentic specimens of *E. subhastata* from Sutherland and Lewis.—E. C. Pelham-Clinton, 34 Craigmillar Park, Edinburgh, 9. 13.iii.55.

Fifty Years Ago

(From *The Entomologist's Record* of 1905)

Naenia typica L. in the Garden.—With the exception of *Noctua xanthographa*, one of the commonest of larvae has been that of *Naenia typica*. Up to Saturday, I had taken a fair number of *N. typica* from what is its favourite food here, honeysuckle. On Saturday, however, I was collecting black larvae of *A. grossulariata* for a friend, when I observed the leaves of every plant of *Auricula* in the garden riddled with holes. Curious to know what had caused these, I examined the plants, and found upon every plant, curled up in the dead leaves at the base of the stem, large numbers of larvae of *N. typica*. I may say that, in the same garden early in February, I found a larva of the same species on the topmost twig of a red currant bush, closely pressed to the bark.—J. W. H. Harrison, Birtley, Durham.

Ignorance About Plume Moths.—Our ignorance of *Oxyptilus parvidactyla*, *O. distans*, and *O. pilosellae* is most profound. It is remarkable that not one entomologist among those who hunt the imagines of these species can tell us anything of importance about their early stages for certain. The larva of the first-named is reputed to feed on *Thymus serpyllum* (probably wrong), and *Hieracium umbellatum*, and one or two other *Hieracii* species (probably right), but we do not know a single British lepidopterist who can find the larvae. Of *O. distans* larva, Mr. Durrant has a doubtful description from a Thetford capture, whilst Mr. Norgate has found the larva (and sent us the empty pupa-cases from which he bred imagines) on *Crepis virens*, but the Breck workers cannot get it again, and Mr. Norgate did not describe his larvae. It is remarkable that the Dover and Folkestone collectors have never been able to get eggs, larvae, or pupae of *O. pilosellae* or *O. distans*, although in some years they have captured the imagines in dozens.—J. W. Tutt.

Coleoptera at Market Bosworth.—In July, I went to Market Bosworth to pay a visit to my friend, Mr. Bouskell, and to try and take *Tetropium castaneum*, the new English longicorne, discovered by him last year. The object of the trip was successfully carried out, the *Tetropium* being taken as soon as the tree, a tall spruce, was reached. Several specimens were secured (my share being a nice ♂ and ♀), and larvae, pupae, and an ichneumon (which Mr. Morley informs me is new to science) parasitic on the beetle were also found. A very high ladder was used to reach the higher parts of the tree, and it is by no means a pleasant job standing on the top rungs whilst both hands are being used to chip at the bark of the tree! The next best capture was over a dozen specimens of *Abdera 4-fasciata*, taken from a stack of oak-logs This rare beetle is a new record for Leicestershire. *Dorcatoma chrysomelina* was found in great profusion in a rotten oak-tree on the ground, *Evaesthetus scaber* was taken under moss by the side of the canal when we were bathing; and some days after I had left Mr. Bouskell took *Pediacus dermestoides* under bark. These two last species are both new to the county list.—Horace Donisthorpe.

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Wanted.—Living female pupae of *Saturnia pavonia* or any other large female pupa (*Laothoe populi*, *Smerinthus ocellata*, etc.) for work on assembling scents. Cash or exchange.—*Dr. H. B. D. Kettlewell, Genetics Laboratory, Department of Zoology, University Museum, Oxford.*

Wanted.—Distribution records in Great Britain and Ireland (especially Ireland) of *Erebia epiphron* Knoch (Small Mounted Ringlet). Localities will be kept secret if so desired.—*Dr. J. F. D. Frazer, Stone House, Boxley, Maidstone, Kent.*

Wanted.—Old insect sale catalogues pre 1952. Also early Bulletins of the Amateur Entomologist's Society. Exchange for other books or cash.—*L. Christie, 137 Gleneldon Road, Streatham, London, S.W.16.*

Wanted.—Lepidoptera of North West Surrey. I am preparing an account of the distribution of Macro-lepidoptera and Pyralidina in Surrey, north and west of the line Weybridge, Woking, Worplesdon, Normandy, Ash Vale (inclusive). Records with full data would be welcome, even of common species: Pyrales and Plume Moths particularly needed.—*R. F. Bretherton, Ottershaw Cottage, Ottershaw, Chertsey, Surrey.*

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Lethality in *Colias croceus* (Fourcroy)

By F. V. L. Jarvis.

Dr. E. B. Ford, in discussing the genetics of *Colias croceus* (Four.) ab. *helice* Hb. in *Butterflies*, p. 238, suggests that homozygous *helice* are unlikely to be as hardy as the heterozygotes. The whitish colour of the *helice* female is controlled by a single sex linked dominant gene producing the characteristic colour in this sex only. Were the homozygous form capable of survival it presumably would resemble the heterozygous female and the males should be yellow, but so far it seems that no homozygotes have been isolated, by reason probably of their inviability. The following account of an experiment may throw some light on this subject.

On 31st August 1954 a female *helice* was taken by the writer at Lulworth Cove, Dorset. It had flown in from the sea. After feeding on honey solution 94 eggs and a number of empty shells were laid the next day on lucerne in the course of an hour, after which the female died. Ten eggs, presumably infertile, failed to hatch out but the remainder produced larvae, 27 of which died in the first instar. The survivors were fed on growing lucerne and *Medicago* in large gauze cages kept in a north facing ventilated room at a temperature as near as possible to 65° F. From experience these were found to be optimum conditions for rearing *C. croceus* and in most instances produced 95-100% of imagines. This point is stressed as the subsequent events seem unlikely to have been caused by faulty rearing.

The remaining 57 larvae produced butterflies above average size between 29th October and 2nd November.

♂♂	♀♀ yellow	♀♀ *helice*
34	11	12

helice emerged one or two days before type females.

With diminishing sunshine conditions for pairing were becoming difficult, but on 5th November a brother/sister pairing took place between one of the smaller males and a *helice* female. The event occurred in sunshine in a gauze cage of 18-inch cube in a room warmed by sunshine and an electric fire to 70° F. Between 9th and 12th November 56 eggs were laid on lucerne and *Medicago*. A prolonged period of cold dull weather effectively terminated the proceedings but the eggs were kept in the same conditions as for the F1 generation.

All the eggs turned pink in 4 days—a somewhat longer time than normal considering they were kept at 65° F.

Thereafter events took an unexpected course. Instead of a healthy brood of F2 larvae the following result was obtained:—

Eggs collapsed after turning bright pink	9
Eggs dying after development of larvae	26
Larvae dying after breaking egg shell	3
Hatched larvae	18
Total	56

Most of the 18 larvae died within 24 hours without attempting to feed on the leaves. Some ate their egg shells; a few fed for one or two days before expiring and only four grew normally. The latter produced imagines somewhat smaller than the F1 brood.

Emergences:

♂♂ 24th January, 28th January, 29th January = 3
♀ 27th January (yellow) .... = 1

Further pairing was impossible owing to winter weather so the insects were kept for record purposes.

The figures obtained in this experiment are too small for statistical deduction but the curious outbreak of lethality in the F2 generation seems to indicate a genetic basis. In this F2 generation 68% died at progressive stages without hatching; 32% had sufficient vigour to hatch. Of these a few were able to feed but could not grow. Only 7% were normal.

Experimental work on the Fruit Fly *Drosophila* has demonstrated the presence of both dominant and recessive lethal genes, some of which appear to exist as multiple allelomorphs. Both types are more or less innocuous as heterozygotes but when heterozygotes are paired, the proportion of homozygotes arising shows degrees of abnormality ranging up to inviability.

In the present instance it seems obvious that lethal genes are exerting a strong influence in the F2 generation. From the graduated results multiple allelomorphs may be suspected and as the female parent carries the *helice* factor there could be a linkage between this and one or more of the lethals, suggesting that the latter are dominant. With such a high percentage of mortality a corresponding quota of lethality must have been contributed by the male. A tentative suggestion is that the selected F1 male carried the *helice* factor as well as lethals. By polyhybrid segregation in the gametes a few individuals other than those bearing one or two *helice* genes (heterozygous or homozygous) would obtain none or a low number of lethal allelomorphs, thus enabling normal development to proceed.

It has been assumed that lethal allelomorphs are probably associated with the *helice* gametes but there is no reason why they should not also be present in the yellow type. However the fact that *helice* averages about 10% only of the total female population suggests that *helice* may be less viable than the yellow type even though it is a dominant. In the event of a pairing between a *helice* female and a male carrying a *helice* gene a high incidence of lethality might be expected. More statistical work on inbred *croceus* should yield valuable data for assessing the relative proportions of lethality in homozygotes of yellow type and *helice*.

By reason of its activity, *C. croceus* in natural conditions is unlikely to produce brother/sister pairings with the resultant homozygous lethal conditions. There may be some connection between this potentiality, dangerous for the survival of the species, and the urge to migrate whereby individuals from the same brood become well dispersed.

It is possible that in some gregarious species such as *Euphydryas aurinia* Rott. and *Lysandra coridon* Poda homozygous lethality may be a controlling factor. After a period of favourable years the population sometimes builds up to a high density coupled with an increasing percentage of aberrations which normally are considered rare. Some of these forms, e.g. ab. *caeca* in *L. coridon* appear to be less virile than the type. They may carry lethal genes which could be more readily built up to homozygotes in an over-populated colony than in relatively wide dispersal over a considerable area. The result is that lethal genes spread in the course of a few generations throughout the population, bringing about a fairly rapid fall in the strength of the colony; a phenomenon which has been observed many times in field analyses. Other factors such as bad weather at the pairing season, parasites, predators and disease are important but the question of lethality is worth investigating experimentally by inbreeding in optimum conditions. The recorded data of an apparent failure in rearing may be more important than the production of a series of cabinet rarities.

Distribution of *Nephopteryx genistella* Dup. in Britain

By S. Wakely.

Last June (1954), while on holiday near Selsey, Sussex, larvae of this very local species were not uncommon on gorse (*Ulex europaeus*). This seems to be the first record for Sussex, and a few notes on its distribution may be of interest.

Barrett gives a good account of this species, stating that in 1871 W. E. Davis captured 15 specimens in the Isle of Wight. These were recorded in two journals under the names of *Pempelia albariella* and *Phycis davisellus* respectively, and it was not until 1875 that they were recognised as a species already known on the Continent under its present name.

Meyrick gives Hants., Dorset and Wilts. as localities. While there have been various records for Dorset, I could find no mention of records for Wilts in any of the journals. Mr. B. W. Weddell tells me that the only record he can find is in a list compiled by the Marlborough College N.H.S.: "6 August, once in 1893. Rabley on gorse". Meyrick had charge of this list and it seems likely that this single record is the basis of his county record.

Somerset is given by Mr. A. H. Turner in a list of lepidoptera taken in that county. The species is given as common, but with no further details. Confirmation of both the Somerset and Wiltshire records are desirable, and it seems likely that its range will be found to include both Devon and Cornwall although I can find no records for these two counties.

Yet another county is mentioned by Beirne in his book on the British Pyralid moths, namely Durham. This northern district seemed so extraordinary that I tried to find out more about the record. Accordingly I wrote to Mr. J. P. Robson, of Barnard Castle, Co. Durham, who was most helpful in his reply. He tells me that there is a reference to the species in Part III of "A Catalogue of the Lepidoptera of Northumberland, Durham and Newcastle-on-Tyne" by John E. Robson (no relation, by the way, to my correspondent Mr. J. P. Robson). This Part III was published in 1905, and the reference to *Pempelia davisellus* Newman = *Nephopteryx genistella* is as follows: "Mr. Sang records that he took larvae of this species (which he calls *genistaecolella*) at Wasterley, in the west of Durham, on 12th April, 1874;

at Wolsingham on 7th June, 1878, and imagines there on 27th May, 1884. He does not give the food-plant or any other particulars. The larva, so far as I know, feeds on *Ulex campestris* and it is very desirable to have these records confirmed, as otherwise the insect appears to be confined to the extreme south of England". Part IV was not published until 1912, and under a section called "Species included in the list which required to be struck out for reasons stated under each" there is the following significant note: "*Pempelia davisellus.*—The entries in Sang's diary under the name of *genistaecolella* at Wasterley on April 12th, 1874, and at Wolsingham, June 7th, 1878, and May 27th, 1884, all refer to *Coleophora genistae* = *genistaecolella* of Doubleday's List, under which species they are indexed in the diary".

Mr. J. P. Robson also says he has in his possession J. Sang's copies of Stainton's *Manual*, in which are many pencilled notes of localities where Sang took various insects. There is no reference at all to *Pempelia davisellus*, but on page 390 under *Coleophora genistae*, at the end of the list of localities given, there is the abbreviation "Wol." for Wolsingham (which is in Weardale).

ABERRATIONS FROM THE HEBRIDES (PLATE II).

1. *Vanessa atalanta* L. ab. *merrifieldi*. Isle of Canna, 26th August 1947.
2. *Maniola jurtina* L. Isle of Canna, 28th July 1953.
3. *Arctia caja* L. Isle of Canna (m.v. trap), 21st July 1952.
4. *Apatele menyanthidis* View. Bred from larva taken on the Isle of Barra Emerged 23rd May 1937.

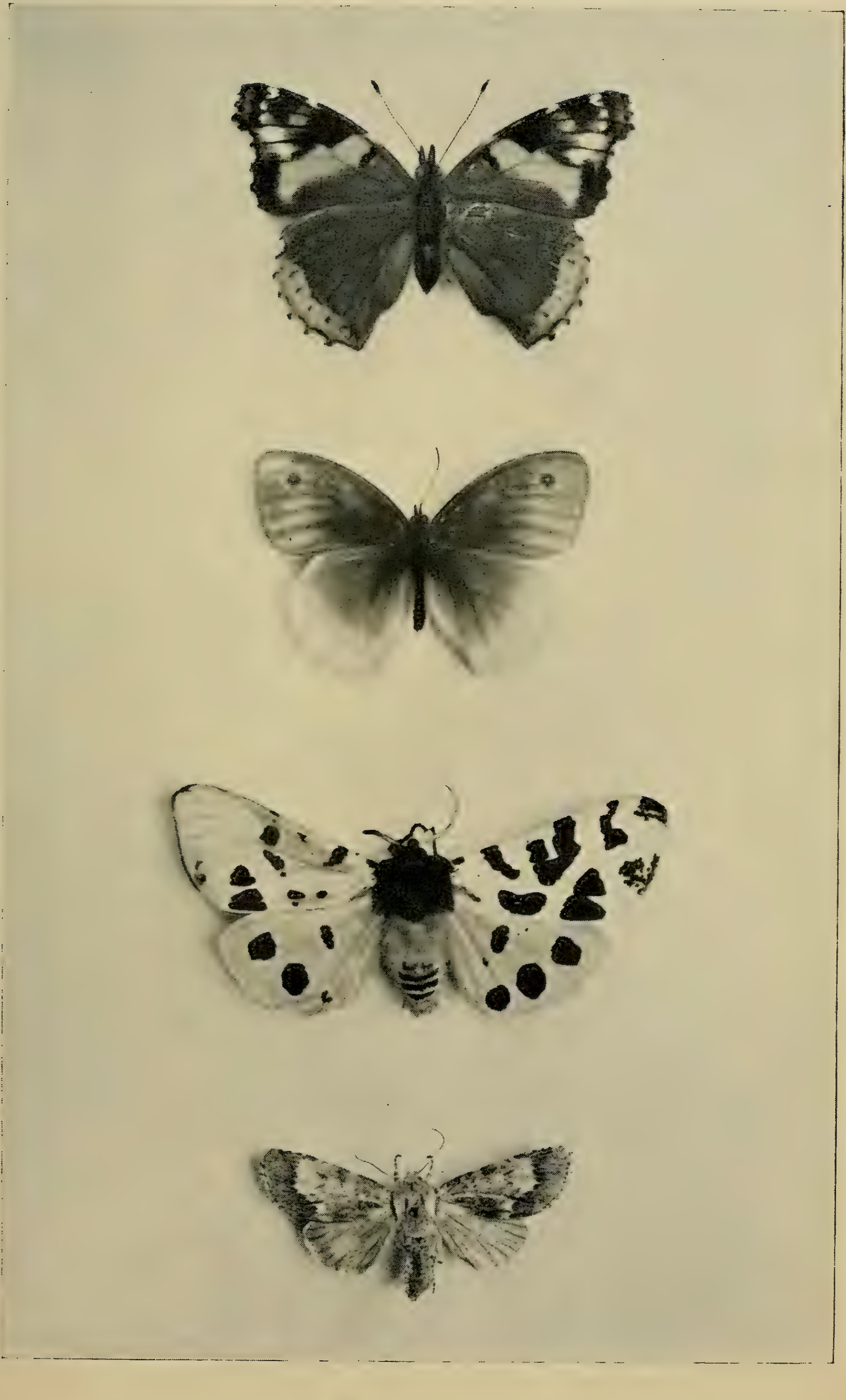
All in J. L. Campbell Collection.

So much for the Durham record, and I presume this is the only one.

Leech gives Dover as a locality, but I can find no trace of this record in any journal. However, the species certainly does occur in Kent, as one was taken at m.v. light by Mr. A. M. Morley at Folkestone on 31st July 1951.

The larvae of *Nephopteryx genistella* are quite easy to find, as they live—often several together—in a web on gorse. The web can easily be mistaken for the work of a spider—in fact a species of spider is often found with them, both apparently living amicably in different parts of a collection of webs. The larvae construct silken tubes leading out to their feeding places and quickly retire if disturbed to the innermost recesses of their webs. Pupation takes place in these silk tunnels and the pupae can best be taken in late July or early August—but it is a prickly business and secateurs are much better than a knife to sever the thorny branches. The webs are not really conspicuous, but easily seen if searched for. In the Isle of Wight I have seen the larvae common at Sandown, St. Helens, and Gurnard, and it has been recorded from coastal districts all round the coast there. It is also common in the Portsmouth area, as well as around Studland in Dorset. Mr. L. T. Ford found the larvae preferred *Ulex minor*, but my specimens were all found on *Ulex europaeus*. There are several species of Tineids which make webs on gorse (*Scythris grandipennis* Haw., for instance, as well as *Depressaria umbellana* Steph. and *D. costosa* Haw.). Their spinnings are rather different in appearance to *genistella* webs,

PLATE II.



but it is as well to remember that there are other web-making species which might be found.

If any entomologists can add records of the occurrence of this species in counties other than Hampshire (including the Isle of Wight) and Dorset it would be of interest. Imagines are seldom seen, but larvae are easy to find if present.

LITERATURE CITED.

British Pyralides. By J. H. Leech. 1886.
Lepidoptera of the British Islands. Vol. 9. By C. G. Barrett. 1904.
A Catalogue of the Lepidoptera of Northumberland, Durham and Newcastle-on-Tyne. Part III, 1905; Part IV, 1912.
A Revised Handbook of British Lepidoptera. By E. Meyrick. 1928.
A Guide to the Smaller British Lepidoptera. By L. T. Ford. 1949.
Journal of the Society for British Entomology. Vol. 3, Part III. "A Preliminary List of the Lepidoptera of the Bickenhall District of Somerset South." By A. H. Turner. 1950.
British Pyralid and Plume Moths. By B. P. Beirne. 1952.

The Lepidoptera of the Lesser Skye Isles

By J. W. Heslop-Harrison, D.Sc., F.R.S.

The term "Lesser Skye Isles" is intended to cover all the smaller islands in Watsonian vice-county 104 lying around the Isle of Skye. These include the Isles of Raasay, South Rona, Fladday, Scalpay, Longay and Pabbay, stretching out to the east between Skye and the mainland of Ross-shire. In addition, to the south and close to Skye itself is the Isle of Soay, with the Isles of Rhum, Eigg, Canna, Muck, Eilean nan Each and Heiskeir spread out parallel to Skye ten miles and more away.

These islands must not, however, be regarded as forming one biogeographical unit for they fall into two clearly-marked groups. Faunistically and floristically, the islands to the east and Skye itself, with Soay to the south, show close affinities with the Scottish mainland. On the other hand the fauna and flora of the southern isles and islets display remarkable relationships with those of the Outer Isles.

These important and consistent differences in themselves suffice to demonstrate that the islands concerned have not received their present populations as a result of long-distance random dispersal, but as the outcome of orderly movements over dry land when suitable land connections were available.

Of the islands named above some have been worked much more intensively than others. We ourselves have devoted much attention to the Isles of Raasay and Rhum although we have spent a considerable amount of time on the other islands. Similarly, Campbell has done good work on Canna, whilst Dr. G. Heslop-Harrison was responsible for almost the whole of our investigations on that island.

In the present list, no fewer than 310 species are included; of these 249 are reported from Rhum and 214 from Raasay.

From Canna, Campbell (*Scottish Naturalist*, Vol. 66, No. 2, pp. 101-21, 1954) records 191 species, including sixteen not detected by us on any island. These are indicated in the present paper by an asterisk. On the other hand, on the adjacent Isle of Rhum we have taken over seventy species not yet on record for Canna.

Pararge aegeria L.—This species was discovered on the Isle of Rhum in 1946, and seems to be firmly established in the woods around Kinloch Castle and on the sheltered moorland slopes along Loch Scresort. The prevalent form is the subspecies *oblita* Harrison although the striking variety *monicae* Harrison has occurred more than once. Also reported from Skye and Canna.

Erebia aethiops Esp.—Abundant on Raasay and Scalpay. Although the species occurs in the more open birchwoods on both islands, it frequents sheltered spots on the moorlands even to the 1000 foot level. Its preferred foodplant is *Molinia caerulea*, but larvae have been swept from *Deschampsia flexuosa* and *Festuca ovina*.

Satyrus semele L.—Quite common on Raasay, South Rona, Scalpay, Soay, Rhum, Eigg, Canna and Sanday. Its favourite haunts are sand dunes, but it often occurs in rocky places and on moorland slopes. In all cases, the strongly marked Hebridean subspecies *atlantica* Harrison alone occurs.

Maniola jurtina L.—In great numbers on all the islands except Longay. The brightly coloured ssp. *splendida* B.-W. forms the bulk of the populations although the insects encountered on Pabbay, in general, present a much duller appearance. The insect does not ascend high in the hills, and displays a definite tendency toward a colonial habit.

Coenonympha pamphilus L.—Fairly well distributed on all the islands in the form of ssp. *rhoumensis* Harrison, first described from Rhum in 1948, but since shown to be the characteristic Hebridean form. Easily distinguished from English insects by the much less contrasting colour of undersides of the wings.

C. tullia Müll.—Locally common as ssp. *scotica* Stgr. on Raasay, S. Rona, Fladday, Scalpay, Soay and Rhum, but only of sparse occurrence on Canna and Pabbay. The insect is found almost invariably in "Molinia" slacks for the larvae feed on that grass and not on *Rhynchospora alba*.

Argynnis selene Schf.—Not rare, but occurring in scattered colonies on Raasay, Scalpay, Soay and Rhum. On Rhum it ascends from sea-level at Papadil and Loch Scresort to high up Barkeval and Minshall. The usual form is the small well-marked form described by me as ssp. *insularum*. The butterfly was also observed on the shores of Loch Coruisk on Skye.

A. euphrosyne L.—Much less abundant in central and southern Raasay than its ally; also seen singly on the slopes of Hallival, Rhum.

A. aglaia L.—Widespread on Raasay, S. Rona, Scalpay, Soay, Rhum, Eigg and Canna. Whilst most of the specimens taken would be regarded as appertaining to ssp. *scotica* Watkins, or as transitions thereto, on S. Rona and on the Lewisian Gneiss in Northern Raasay even darker females occur. The larvae feed uniformly on *Viola Riviniana*.

Vanessa atalanta L.—Occurs on all the islands when a migratory horde advances so far north.

V. cardui L.—The same statement holds true of this species. In general, on the islands, the usual foodplant is *Cnicus arvensis* but I have seen the larva on *Carlina vulgaris*.

Aglais urticae L.—Very plentiful everywhere, even on Heiskeir and Eilean nan Each, and varying very little in the imago, but often greatly in the larvae. On Heiskeir the larvae were observed on *Urtica urens*.

Nymphalis io L.—First seen on Raasay in 1936, then on Rhum in 1943 and subsequently on Eigg and Muck. The insect is now firmly established on Rhum where its "metropolis" is Kinloch although it has been seen in many stations in the island; also recorded for Canna.

Polyommatus icarus Rott.—Common generally on all the islands upon which *Lotus corniculatus*, its preferred foodplant, grows freely. Even on Heiskeir, it forms a resident element in the insect population for Harvie-Brown reported it from that island in 1892, and I collected its eggs there in 1938. The prevalent form is the ssp. *clara* Tutt, a race possessing large bright blue females.

Callophrys rubi L.—Found on Raasay, Scalpay, Rhum and Canna and occurring from April 18 (Rhum) to early August (Raasay). For the most part its larval foodplant is *Vaccinium Myrtillus* although larvae have been swept from *Empetrum nigrum* on Scalpay and from *Calluna vulgaris* on Rhum.

Pieris brassicae L.—Although the island populations of this species generally originate in spring immigrants, there is a small sedentary native component. This may be demonstrated by the occurrence of overwintering pupae and by the presence of small numbers of the species when no immigrants have been observed elsewhere in the British Isles. On Rhum, where the choice of foodplants is very limited, I have seen turnip fields stripped by hosts of larvae.

P. rapae L.—Only a very occasional immigrant; seen rarely at *Buddleia* in Raasay House gardens, on Scalpay and once each on Rhum and Canna.

P. napi L.—Now that the farce of describing Hebridean colonies of this species as immigrants has ended, this butterfly can only be described as a common resident on all the major islands as well as occurring on Longay, Fladday, Soay, Eilean nan Each and Heiskeir. The insect is double-brooded in the Hebrides and its larvae feed chiefly on *Cardamine pratensis*, although I have collected them from *Thlaspi calaminare* and *Nasturtium sylvestre* on Rhum, and from *Cochlearia* on Muck.

**Colias croceus* Fourc.—Reported from Canna.

Laothoe populi L.—Not rare on Raasay, S. Rona, Scalpay, Pabbay, Soay, Rhum, Eigg, and Canna; larvae on various sallows and aspen. On Rhum, it occurs on the latter tree high up on a gorge on Mullach Mor.

Hemaris tityus L.—Plentiful at *Rhododendron*, *Pedicularis* and *Lotus* flowers near Kinloch, Rhum.

Macroglossum stellatarum L.—Sporadically on Rhum, Canna, etc., as a migrant.

Celerio galii Schf.—One at Kinloch, Rhum, August 22, 1944.

Harpyia furcula L.—Ova and larvae collected from *Salix aurita* and *S. atrocinerea* on Raasay, S. Rona and Soay; also recorded for Canna.

Cerura vinula L.—Common on all the larger islands on various Salices and aspen. A batch of pure white ova was collected from sallow near Holoman, Raasay.

Pheosia tremula Cl.—On aspen on Raasay, S. Rona and Eigg.

P. gnoma Fab.—Larvae on birch on Raasay, S. Rona, Scalpay, Longay, in a gorge on Hallival, near Cave Bay and Kinloch, Rhum, and around Camas nan Gall, Soay; imagines at light, Raasay.

Notodonta ziczac L.—Generally distributed on Raasay, Scalpay, S. Rona, Pabbay, Soay, Rhum, Eigg and Canna. The larvae occur on many sallows, including *Salix repens,* and aspen. As they are light-sensitive many very beautiful forms occur, especially on aspen.

N. dromedarius L.—Another species with a wide range in the same islands; larvae usually on birch and alder, but also on hazel north of Kilmory, Rhum.

Lophopteryx capucina L.—Common on the isles north of Skye, but sparingly on Rhum, Eigg, Canna and Soay.

Phalera bucephala L.—Variable in abundance but sometimes swarming: Raasay, S. Rona, Pabbay, Soay, Rhum, Eigg and Canna.

Clostera pigra L.—Larvae always on *Salix aurita*; in some numbers on Raasay, S. Rona, Scalpay, Soay and Longay, but very rare on Rhum and Canna.

Thyatira batis L.—Along the Arish Burn, Raasay, imagines and larvae at Kinloch, Rhum; recorded from Canna.

Tethea or Schf.—Larvae in enormous quantities on all the northern Skye Isles, on Rhum, Eigg, Canna and Soay.

T. duplaris L.—Larvae on birch, Raasay, Soay and Rhum; one melanic imago, Rhum.

Achlya flavicornis L.—Not rare as var. *scotica* on Raasay, S. Rona, Scalpay, Soay and Rhum. On Rhum single isolated birches may support a colony of the insect.

Orgyia antiqua L.—Along the Arish Burn on Raasay, and around the Harbour, Soay; on Raasay a larva was taken with usual red coloration replaced by white, and the hair pencils reduced in length.

Poecilocampa populi L.—Larvae from alder, Raasay.

Lasiocampa quercus L.—The ssp. *callunae* Palmer occurs freely on the moorlands of all the islands.

Macrothylacia rubi L.—Also common enough in the same localities.

Philudoria potatoria L.—Noted, not rarely, in all stages on Raasay, Scalpay, Soay, Pabbay, Rhum and Canna. On Rhum, its larvae abound everywhere on Molinia, and it is noteworthy that those found a mile north of Harris are often melanic. Although one of our party discovered the species long ago on Canna, only recently has Campbell observed it there. Disregarding all the Skye, Rhum and Soay records as well as those made for us for Canna, he chooses to advance a fanciful "blown over from the mainland" theory to account for its presence on the island!

Saturnia pavonia L.—Not uncommon on the moors of all the islands.

Drepana falcataria L.—Not very plentiful in Raasay House woods, S. Rona, Scalpay, Soay and Rhum. On the latter island, it may be taken in Kinloch woods, but it is to be found, far away, on an isolated clump of birches on the Creag na h'Iolaire.

D. lacertinaria L.—Commoner than the preceding species on the same island.

Cybosia mesomella L.—Rare near Harris on Rhum and on Canna.

Eilema lurideola Zk.—On Eigg, north of Poll nam Partan.

Spilosoma lubricipeda L.—Only detected on Raasay, Pabbay, Rhum, Eigg, Muck and Canna, chiefly as larva.

S. lutea Hufn.—Rather rare, Raasay, Pabbay, Rhum, Eigg and Canna.

Phragmatobia fuliginosa L.—As var. *borealis* on Raasay, S. Rona, Scalpay, Longay, Rhum, Muck and Canna.

Diacrisia sannio L.—Larvae and imagines on Meall à Ghorntain, Rhum, Eigg and Canna.

Parasemia plantaginis L.—Observed on Raasay, S. Rona, Rhum, Muck and Canna.

Arctia caja L.—Not rare on the major islands.

Callimorpha jacobaeae L.—One batch of larvae on Soay and another near the Point of Eyre on Raasay. In the case of this species Campbell has upset biogeographical investigations by liberating larvae from elsewhere on Canna.

Euxoa cursoria Hufn.—Rare as the var. *armena* near Kilmory, Rhum, and in a more typical guise at Suishnish, Raasay.

E. nigricans L.—Rare on Eigg and S.W. Raasay.

E. tritici L.—Not common, vars. *pallida* and *fusca* Kilmory, Rhum, and on Raasay; reported from Canna.

Agrotis vestigialis Hufn.—Var. *clavis* on the Kilmory dunes, Rhum.

A. exclamationis L. Kinloch, Rhum and Canna.

A. ipsilon Hufn.—On the Camas na Geadaig, Scalpay, and one at rest on the Castle, Kinloch, Rhum, also reported from Canna.

A. ripae Hb.—One found amongst marram on the Kilmory dunes, Rhum, by my colleague, Dr. K. B. Blackburn.

Lycophotia varia Vill.—On the moors of the various islands where the larvae abound; var. *suffusa* Tutt has been noted.

Actebia praecox L.—On the Kilmory dunes and on Canna.

**Peridroma porphyrea* Schf.—Recorded from Canna.

Ammogrotis lucernea L.—On Rhum at flowers on Barkeval and near the Salisbury Dam; also on Canna.

Rhyacia simulans Hufn.—A single specimen of var. *suffusa* was taken at Kinloch, Rhum.

Graphiphora augur Fab.—On ragwort, Raasay, Rhum and Eigg.

Diarsia brunnea Schf.—Larvae on Raasay, Rhum and Eigg.

D. festiva Hübn.—The typical form was taken on Rhum and Soay, with var. *ignicola* H.-S., *subrufa* Haw. and *mendica* F. on the former island; also recorded for Canna.

D. dahlii Hb.—Type, with var. *rufa* Tutt, at *Erica* flowers on Raasay.

Ochropleura plecta L.—Occasional on Rhum, Eigg and Canna.

Amathes agathina Dup.—Larvae on Rhum and Eigg from heather; imagines captured on Raasay and S. Rona.

A. glareosa Esp.—Type and var. *rosea* Tutt from *Calluna vulgaris* on Raasay; also noted on Rhum, Eigg and Canna.

A. castanea Esp.—A few, obtained from flowers on Raasay, included typical forms and var. *laevis* Haw.; the type alone was noted on Rhum.

A. baja Fab.—Not common Raasay, Soay, Rhum and Canna.

A. depuncta L.—Very scarce on Raasay and in the Castle grounds, Kinloch, Rhum.

**A. ditrapezium* Schf.—Reported from Canna.

A. sexstrigata Haw. Very rare, Kinloch, Rhum.

A. xanthographa Fab.—Well distributed on Raasay, Scalpay, S. Rona, Soay, Rhum, Eigg, Muck and Canna. The var. *rufa* Tutt abounds, but the type and var. *obscura* Tutt are far from rare.

**Anaplectoides prasina* Schf.—Recorded from Canna.

Triphaena comes Hb.—Common on Raasay, S. Rona, Scalpay, Rhum

Eigg and Canna. Larvae have been swept from many plants, and insects captured by night at sugar, heather, woodsage and ragwort. By day, imagines have been beaten from heather, birch and grass clumps whilst on Rhum they have been obtained in numbers from the walls of the verandah, Kinloch Castle. On Scalpay, the vars. *adsequa* Tr., *ochrea* Tutt, *grisea* Tutt and *rufo-grisea* Tutt predominate, but on Raasay, S. Rona, Soay and Rhum, whilst the same forms were present, over 60 per cent. of the specimens taken belonged to vars. *rufa* Tutt, *curtisii* Newm., *nigrescens* Tutt and *rufo-nigrescens* Tutt. The blacker forms, with var. *nigra* Tutt, occurred in greater numbers on S. Rona, and uniformly rested on the peaty ground or amongst low vegetation. From a batch of Raasay eggs the vars. *consequa* Hb. and *lineata* Harrison were bred. Of seventeen examples caught by bats on Rhum, there were 10 *nigrescens*, 2 *grisea*, 1 *rufa*, 1 *rufescens* and 3 more or less typical.

T. orbona Hufn.—Captured on Eigg and one bred from a larva swept along the edges of the Holoman-Inverarish road, Raasay.

T. pronuba L.—Abundant on all the islands; the forms examined included var. *ochrea* Tutt, *rufa* Tutt, *brunnea* Tutt as well as more typical examples.

T. ianthina Esp.—Concerning this insect Tutt (*British Noctuae*, II, p. 92) writes "This species varies but little in any direction". This pronouncement betrays a complete lack of knowledge of the position in the Scottish Western Isles, especially in Raasay, S. Rona, and Scalpay, where the variation is great. On those islands the forms captured included the type, var. *rufa* Tutt, var. *purpurascens* Harrison, var. *subrosea* Harrison, var. *plusioides* Harrison, var. *virgata* Harrison, var. *ronensis* Harrison, and a new melanic form, var. *peacocki* Harrison. On the other hand, on Rhum and Canna, the examples taken cover the type, var. *rufa* and var. *purpurascens* with a sprinkling of other named forms.

Cerastis rubricosa Schf.—Captured at sallows on Raasay, Rhum and Eigg; the vars. taken were *mucida* Esp., *rufa* Haw. and *pallida* Tutt. The species is also on record for Canna.

Phalaena typica L.—At sugar on Rhum; also Canna.

Anarta myrtilli L.—Seen on moors on all the islands, either flying over heather, or as larvae feeding on that plant.

A. melanopa Thun.—One on Duncaan, Raasay, 1936.

Mamestra brassicae L.—Very rare near Inverarish on Raasay; also taken on S. Rona.

Polia nebulosa Hufn.—At sugar in Kinloch Woods, Rhum, 1951, and on Canna.

Diataraxia oleracea L.—Common as larvae on S. Rona, but observed on Pabbay, Rhum, Eigg and Canna.

Ceramica pisi L.—Plentiful as larva on bracken, thistle, etc., on all the bigger islands, as well as on Fladday and Longay. Vars. *scotica* St. and *splendens* St. prevail, but transition forms are not rare.

Hada nana Hufn.—Rather rare at Kinloch, Rhum, and on Canna.

Hadena thalassina Hufn.—Not common on Rhum, Eigg and Canna.

H. contigua Schf.—Odd examples captured on Raasay, Soay and Rhum.

H. bombycina Hufn.—At flowers of *Silene acaulis* on Barkeval, Rhum, and on Canna.

H. caesia Schf.—On sea campion on S.W. Rhum where we first collected larvae in 1938; also on Canna. These occurrences represent a great extension of range.

H. conspersa Schf.—Not plentiful, Raasay, S. Rona, Pabbay, Soay, Rhum and Canna; larvae were collected on Raasay near Hallaig from *Silene acaulis.*

H. bicruris Hufn.—Very rare at Fearns, Raasay, but common on Eigg and Canna.

H. cucubali Schf.—Well distributed on all the islands and feeding as larva on *Lychnis Flos-cuculi.*

Orthosia gothica L.—On all the bigger islands, including Muck, with the usual Scottish variational range; only on Rhum and Eigg was the var. *obsoleta* noticed.

O. stabilis Schf.—Common enough at sallows on Raasay, Rhum, Eigg and Canna, with Tutt's vars. *pallida*, *rufa* and *suffusa.*

O. cruda Schf.—One at sallow, Rhum, April 1946.

O. incerta Hufn.—At sallows on Raasay, Eigg and Rhum; also found on S. Rona and Canna. Var. *nebulosus* Haw. occurs freely.

O. gracilis Schf.—Quite common at sallows on Raasay, Rhum, Eigg and Canna; vars. *pallida* Tutt and *rosea* Tutt were boxed.

Panolis flammea Schf.—At sallows on Raasay and Rhum; var. *grisea* Tutt was also captured.

Tholera popularis Fab.—One taken as larva, Kinloch, Rhum.

T. cespitis Fab.—Very rare on Rhum; also on Canna.

Cerapteryx graminis L.—Abundant everywhere in grassy places.

Leucania pallens L.—At rush flowers on Raasay, Scalpay and Rhum.

L. impura Hb.—At sugar on Rhum, 1951; also on Canna.

L. littoralis Curt.—On the Kilmory sand dunes, Rhum 1951.

L. conigera Schf.—Larva on *Dactylis*, Rhum, April 1946; also on Canna.

**L. lithargyria* Esp.—Recorded from Canna.

**Cucullia umbratica* L.—Also found on Canna.

Bombycia viminalis Fab.—Larvae on *Salix aurita* along the Arish Burn, Raasay, Cave Bay, Glen Shellesder, Rhum, Laig Bay, Eigg.

Aporophyla lutulenta Schf.—Captured near Clachan, Raasay; also found on Eigg and Canna. Types and var. *luneburgensis* occur.

A. nigra Haw.—Rare along the Arish Burn, Raasay; Canna.

Xylena exsoleta L.—Not rare at sallow, Raasay, Rhum and Eigg.

X. vetusta Hb.—Much more plentiful than the preceding at sallow on Raasay, Rhum, Eigg and Canna; larvae near Brochel Castle, Raasay.

Xylocampa areola Esp.—Larvae common on honeysuckle on Rhum; also on Canna.

Eumichtis adusta Esp.—Occasional around Loch Scresort, Rhum; and on Canna.

(Te be continued)

The Cottage in the Hills

By An Old Moth-Hunter.

There are spots in the hills of Central Wales, high up among the brown and purple tors that stretch in endless succession to the horizon, which are strangely alluring to the entomologist who is given to rambling "on his own". There was one place, far from habitations, to which I often went to gain the mental refreshment it always had the power to bestow. The rough cart track leading to it wandered up a ridge; and as one climbed and climbed, only the surrounding ridges unfolded. But presently the track disappeared into the sky ahead, and knowing what was coming, anticipation quickened my pace. For I knew that in a moment I should be standing on the crest looking down into a valley of unsurpassed loveliness, or at all events unsurpassed by any other valley that I knew among those hills. It was not an impressive valley; not by any means; it was quite a little valley, perhaps only thirty yards across at its floor. A tiny valley in fact. But its sides were steep and it was very sheltered and its greenery was that of the emerald. A wee burnie that flashed between miniature watermeadows chattered merrily and threw handfuls of spray at the shiny brown boulders and rocked the lowest plants that overhung its banks. And over the stream dipped and hovered azure-bodied damsel-flies while every now and then an *aglaia* paid hasty visits (as is the way of *aglaia*) to the flowers in the tiny meads. Bilberry straggled down among the rocks on the sides of the valley, and heartsease had a stronghold where rocks met meadow.

But it was not only the valley that attracted me, for there are many such valleys, though of lesser beauty, among those hills. At the top of this valley stood a ruined cottage.. Years ago someone—I know not who he was—and his wife, and perhaps a child or two, had come to this lonely spot and had looked upon it with eyes like mine—or, perhaps it was the wife alone, a stranger from the North, who saw something in the burn and the tiny green meadows and the flowers which reminded her of her home . . . I know not how it was, but there they built their house. They drew up plans; they described their modest requirements to the builder; they measured out the ground; they went to bed each night thinking of the new house—their home. They watched it grow: she watched every movement of the men as they set the stones, sawed the timber, slated the roof, her mind planning, planning . . . . Then at last it was finished: their home. Surely there never was a home quite like it!

And then?

How came they to desert it? Did she die and her man turn from the valley that promised happiness and brought tragedy? Or did they lose a child? Those moors are vast in extent and once a ridge has hidden the homestead from sight one could wander for miles without finding shelter. There are crevasses half hidden by the heather that one comes upon unawares, and there are deep bogs that look like lawns, and deeper pools in some of the streams. . . . Only tragedy could have brought about the abandonment of such a home. I think I must be right in my guess that she was a "foreign" woman and chose as the site for her home a spot dear to a northerner but one which no Welsh woman would have chosen; otherwise so goodly a homestead would soon have found another occupier.

So I used to sit there on the stone wall and kick my heels against it and gaze now upon the deserted house, now upon the valley; now following with my eyes an *aglaia* as it sped on and on towards the south, where the valley widened and turned aside before a great brown rampart of hills. Then for the *n*th time I would jump down into the acre of grassy land which the stone wall girdled, and walk round the house, and pick up and speculate upon some bit of iron or shard, and so in at the door, and through the two deserted rooms, and open the empty cupboards and wonder what they had once contained. . . . Then up the little narrow staircase and across the floor of a bedroom to lean my elbows on a window-frame and gaze down upon the valley, and feel the breeze from the south upon my face, and the sun upon my cheeks, and drink in air that refreshed one even as champagne refreshes a jaded mind. And I wondered and wondered. . . .

Behind the house, that is to say on its north, right at the head of the valley, were five Scots firs. Not lofty trees, but short and sturdy. They were the only trees for many a mile, and at first I thought that they had perhaps been planted by the builder of the house. But the house was not an old one, and on those inhospitable moors pines grow slowly. Maybe it was the Scots firs that decided the selector of the site. . . .

Had I been a young man when I found this little house I think I would have bought it—provided that I could have found its owner. It was strongly built of rough stone dug from the hillside, and its walls were as sound as ever they had been. Many slates had gone from the roof; window-frames and doors had rotted through lack of paint; but roof-timbers and floors were sound. Two young active men who knew how to use their hands could have made that little house as snug and comfortable a summer-home as one could wish to have. At one end was a useful shed—just the thing for a small car. There was a byre nearby. The burn traversed the little property and made the meadow swampy—sometimes this harboured snipe and once a brace of teal; but if the stream had been confined the land would soon have dried, and then one could have made a lawn and flowerbeds. . . . So I, too, plotted and planned. From May to September it would have been not far short of an earthly paradise—for the right man and the right woman. And probably one could have bought both the acre and its house for twenty pounds.

The cart track, which passed within a hundred yards of the cottage, was just motorable—in parts. But there were short steep hills between the house and the hamlet four miles away and eight hundred feet lower down which would have tried the endurance of any motor-car. Indeed, there was one sharp drop which, I think, could not have been negotiated by even a cart with a team of horses. For long, I wondered how the builder of the house had transported his slates and heavy material; then I found that by winding about among the surrounding hills it was possible for a horse and cart to take quite a heavy load by gentle gradients—across country, provided one was prepared to go three or four miles out of one's way.

Both sugar and light would probably have paid a dividend in that valley and on the surrounding moors. *Glauca*—or, rather, *bombycina*, as we must now call it—and *menyanthidis* must surely be there, and most of the moorland Geometers. *Cinerea* and *furva* I know inhabit those parts. Perhaps *tullia* would turn up by day. There is plenty of bilberry: how excited you would be if *ilicifolia* came to the lamp—for maybe *ilicifolia* has removed to the west of Cannock Chase, where formerly it had a stronghold and where perchance even now it exists. Graylings and Green Hairstreaks are common, and so is *selene*, who so often prefers high treeless ground to wooded country. And if you followed the little valley down and down, where it grows wider and wider, till you came to the marsh through which the burnie (though here it is a burnie no longer) flows to join a river, you might even get some surprises in the moth line.

And now I have said good-bye to the little house for the last time. Never again shall I sit on the stone wall and swing my legs while clouds like tufts of cottonwool float in the azure sky. Nevermore shall I listen to the musical tinkle of the little burn, chiming like bells of hanging glass, and hear the curlews whistle as they skim a nearby peak, and the soft twitter of the linnets flitting about the heather-tops, with sometimes the challenge of a grouse—a pastorale of such sweet melody as brought "all Heav'n before mine eyes". No more shall I see the golden saxifrage peeping starlike from chinks in the rocks, and the patches of dainty blue and pink milkwort, with here and there a white bell among the blue ones, before I jump down from the wall to inspect the cottage "just once more". The days have passed and twilight has come: night is not far off. Dear God, how grateful I am to have known that spot and to have stored up its unfading loveliness in my memory!

DIPTERA

Behaviour of *Neurogona pallida* Fall. (Dolichopodidae)

By E. C. M. d'Assis-Fonseca, F.R.E.S.

Parent (1938, *Faune de France*, **35**: 494) refers to the "curious trick" of the males of *Neurogona* species in repeatedly ascending the trunks of trees, and it may accordingly be of interest to record the writer's experience in this connection.

On 7th June 1949 the behaviour of a number of males and a single female of *Neurogona pallida* Fall. was observed in Leigh Woods (Som.), near Bristol. For some while during the morning it was noticed that males of this species were making zig-zag flights up the trunks of certain trees, and the opportunity was taken to secure a good series of this sex. The trees selected were those with smooth trunks and with few or no branches for the first twelve feet or so, usually Ash or Sycamore, and in nearly every case *with a diameter of between five and eight inches*. The apparent preference for trees between these diameters is worth noting, as the woods contained considerable numbers of Ash and Sycamore, both of much larger and appreciably smaller diameter, with trunks quite as smooth as those mainly selected by the males of *pallida*. In only two instances, however, was the flight of a male fly observed on trees outside the "preferred range", in both cases the diameter being larger. Something over 40 trees, comprising most of those with smooth trunks within a prescribed area were kept under intermittent observation during the afternoon, and well over 100 flights were seen on trees of diameters within the "preferred range". The flight of each male fly, which appeared as if from nowhere, started at the base of the tree and followed a rapid zig-zag upward course close to the trunk, covering a strip one to two inches wide on the side towards the sun, and continued upwards until lost to sight amongst the foliage. In actual fact the sky on this particular day was overcast and no sun was visible, but the flights invariably took place on the side of the tree which would normally be facing the sun.

Such behaviour on the part of the male flies seemed clearly connected with their search for a mate, and examination of the tree trunks was continued in the hope of discovering a female. A Sycamore of about 7½ inches diameter was finally located, on the "sunny" side of which a female was resting five or six feet up from the ground, and during the next half hour or so a number of males were observed to make their characteristic flight up the trunk. Not one of them, however, appeared aware of having passed close to what was presumably the object of its journey, although certain movements on the part of the female (in one instance a short flight of two or three inches up the trunk) seemed to indicate that she herself was not unaware of the presence of the male flies. No attempt at copulation by any male was observed, and towards late afternoon, when the intervals between flights became prolonged, the female was tubed and kept alive for two days. No eggs were laid so it is assumed that she was probably not fertile.

The same area in Leigh Woods has been visited each late spring and early summer since 1949, but, probably owing to unsuitable weather, *N. pallida* has not again been seen there. It would therefore be of interest to know if other collectors have had similar experiences with this species, and particularly whether a mating has been observed to take place.

Some Diptera bred from Fungi

By M. Niblett, F.R.E.S.

The Diptera mentioned below were bred from various species of Fungi; I have been able to give the names of only a few of these, some were too far decayed to be recognizable, others I was unable to name definitely. The larvae pupated in or on the soil. All localities given are in Surrey.

TIPULIDAE.

Ula sylvatica Mg.: At Bookham Common 9.ix.51, a fungus was found containing larvae of this species, from which the flies emerged during October, while from a specimen of *Lactarius vellereus* collected there 18.x.51, they did not emerge until April of the following year.

MYCETOPHILIDAE.

Mycetophila fungorum Deg.: Numerous larvae were found at Bookham Common 18.vi.53, from which the flies emerged 26.vi.53; from another fungus collected at Boxhill 6.viii.53, they emerged 13.viii.53; from a specimen of *Boletus bovinus* collected there 18.ix.53, the flies emerged 23.ix.53.

MUSCIDAE.

Fannia canicularis L.: Larvae of this species were found at Boxhill 6.viii.53, from which the flies emerged during September.

Fannia difficilis Stein.: Larvae of this species were also obtained from the same fungus, but the flies did not emerge until June of the following year.

Mydaea discimana Mall.: From a small *Boletus* sp. found at Epsom Common 6.ix.51, one fly emerged 25.x.51 and another 13.v.52; from a *Boletus bovinus* collected at Boxhill 12.ix.53, several flies emerged during the following May and June. This species was recently added to the British List by Mr. J. E. Collin, and I believe this is the first record of it being bred here.

Mydaea tincta Zett.: From the fungus *Lactarius vellerus* found at Bookham Common 18.x.51, this species emerged 3.v.52.

Muscina assimilis Fln.: From a fungus collected at Boxhill 6.viii.53, a few flies emerged during August and September.

Pegohylemyia cinerea Fln.: From larvae in a *Boletus laricinus* collected at Boxhill 12.ix.53, a number of flies of this species emerged during May 1954.

Pegomyia winthemi Mg.: Larvae of this species were found to be quite plentiful in a *Boletus* sp. at Oxshott in September; from these about a dozen flies emerged in October, and a number from 17.iv to 17.v of the following year.

I am indebted to Mr. J. E. Collin who was good enough to identify the flies for me.

ON DICRAEUS SCIBILIS COLLIN AND D. FENNICUS DUDA (DIPT., CHOLOROPIDAE).—When Mr. J. E. Collin published his revision of the British Oscinellinae in 1946, *Trans. R. ent. Soc. Lond.*, **97**: 117-148, he raised *D. fennicus* Duda to specific rank and added it to the British List and described *D. scibilis* as new to science.

I found both species near Flatford, Suffolk, in July 1951. Collin recorded *D. scibilis* from Orford, Suffolk; Gravesend, Kent; and Woodditton wood, Cambs., with dates of June to 3rd July. At Flatford, both sexes were found in the pastures to the west of the Mill on 8th July.

D. fennicus Duda was recorded by Collin from Norfolk, Suffolk, Essex, Kent and Cambs. but without mention of any dates. In 1946, 28th July, I found the species with *Dicraeus vagans* Mg. on the saltings at Swanscombe, Kent. At Flatford in 1951 two females were visiting the flowers of Hogweed, *Heracleum sphondylium* L., on 11th July. The next day, crossing the river and passing into Essex, I found some of the species along the sea wall and an abundance in an area dominated by Sea Couch Grass, *Agropyron pungens* (Pers.) Roem & Schult. The following day when visiting Shingle Street, on the Suffolk coast, 5 miles S.W. of Orford, I found *D. fennicus* about the sea wall in areas of the same grass.

The life history of these species is unknown but as most of the Choloropidae, when larvae, are internal feeders in grasses, it might be worth while to pay attention to *Agropyron pungens* in the hope of rearing a brood of *D. fennicus*.—L. PARMENTER, F.R.E.S.

Rhagio strigosa Mg. (Dipt., Rhagionidae) in Britain.—A specimen of this fly, which was not accepted for the British List by Verrall, although included by Walker, was taken in the 'Happy Valley', Box Hill, Surrey, by myself on 29th July 1954. The specimen was recognised as being something unusual by its yellow dorsum: it otherwise looked like a small pale *R. scolopacea*, its wings being maculated.

I showed the specimen, on my return to Oldham, to Mr. L. N. Kidd of the Werneth Park Study Centre. He also thought that it was unusual and he sent it to the British Museum (Nat. Hist.). Some time later he received a reply from Mr. H. Oldroyd saying that the specimen was *Rhagio strigosa* Mg., a new British Rhagionid.

The specimen is now in the National collection at the British Museum (Nat. Hist.).—P. Skidmore, 'Roses', Grains Road, Shaw, Lancs.

Notes and Observations

Nomophila noctuella Schf. in Sussex.—My son, M. W. Harper, has reported a fresh 0 of this species in a light trap (m.v.) at Hurstpierpoint, Sussex, on 26th March. I have heard of other immigrant records around this date.—G. W. Harper, Neadaich, Newtonmore, Inverness-shire. 11.iv.55.

First Moths in Inverness-shire, 1955.—This very severe and prolonged winter is considered locally to be the worst of this century, so a note on the emergence of the common early moths may be of interest.

A short relaxation and thaw occurred the last week of January, and as usual *Phigalia pedaria* Fab. seized the opportunity to emerge on the 29th; but severe weather returned on 5th February, the month producing the lowest unofficial temperature, $-20°$ F., ever recorded here, while temperatures of $-5°$ F. to $-10°$ F. were of nightly occurrence, seldom rising above zero even by day.

The first half of March, however, produced lovely sunny weather, with day temperatures around freezing point, and a few migrant birds, plovers, curlew and song-thrushes arrived from the south.

I was encouraged to start my m.v. light trap on 12th, and on 15th and succeeding days a few more *P. pedaria* emerged, and the first hibernator, *Conistra vaccinii* L. appeared on 25th.

Continuing sunshine encouraged the larvae of *Phragmatobia fuliginosa* L. to come up, and a few were spinning their cocoons on 28th March, while the common sawflies were abundant, and I found the first *Semioscopis avellanella* Hübn. freshly emerged on a birch tree the next day, and *Orthosia gothica* L. came to trap on 30th.

Spring emergences started properly on 1st April, with *Orthosia incerta* Hufn., *O. gothica* L., *O. stabilis* Schb., *Cerastis rubricosa* Schf., *Achlya flavicornis* L., and *Colostygia multistrigaria* Haw. in the trap, while I was surprised and pleased to find the first *Brachionycha nubeculosa* Esp., a newly emerged ♀, on a birch tree the same afternoon.

Really mild weather then developed. *Brephos parthenias* L. appeared on 6th April, together with *Erannis marginaria* Fab. while the earlier moths became really plentiful. At the time of writing, 11th April, the first *Poecilopsis lapponaria* Bdv. has emerged in one of my local colonies, not so very much later (about a week) than usual. The signs are that, given a continuance of good weather, the late start may soon be overtaken.—G. W. HARPER, Neadaich, Newtonmore, Inverness-shire. 11.iv.55.

ETHMIA BIPUNCTELLA F. AT PEVENSEY.—In September 1953, on a visit to Pevensey Bay with Dr. A. M. Easton, one of us beat from *Echium vulgare* growing on waste ground by the roadside a pair of small speckled larvae of unfamiliar appearance. These I took and later passed on to a collector friend, Mr. Dudley Collins, in whose care they soon spun up without further feeding; and from one of them a large and distinct-looking 'micro' duly resulted (the other, for some reason, failed to emerge). The species was still unknown to us but was recently identified, from an exhibited specimen and a figure, as *E. bipunctella*. Mr. H. C. Huggins kindly informs me that during the past six years or so the insect has been found widespread on the coast of Kent and Sussex, especially in the shingle areas where its foodplant abounds —Dungeness and the Crumbles—though previously, and elsewhere still, extremely rare. He also points out the curious parallel between the British history, etc., of this moth and that of *Calophasia lunula* Hufn. —A. A. ALLEN, 63 Blackheath Park, S.E.3. 14.iv.55.

STRYMON W-ALBUM KNOCH IN NORTH-WEST KENT.—During a 'beetling' trip to High Halstow in the Hoo peninsula last July, Mr. A. W. Gould and I had the pleasure of seeing this local Hairstreak for the first time in our experience, in a sunny and sheltered glade of a hilly wood and in the adjoining part of a lane. Specimens were noted on bramble blossoms, and one (captured with some dexterity on my friend's part) on an umbel of hogweed. The butterfly appeared highly localized, though probably in fact occurring over a wider area as we made no special search for it. I do not know what is the present status of *S. w-album* in West Kent, but believe it to be generally infrequent in the vice-county; and since the locality in question is rather off the beaten track and, I think, visited more by ornithologists than by entomologists, it may be well to place it on record.—A. A. ALLEN, 63 Blackheath Park, S.E.3. 14.iv.55.

LITHOSIA QUADRA LINN. IN SOUTH CORNWALL.—I was pleased to see in the January issue of the *Record* that *L. quadra* was amongst the insects taken by Colonel H. G. Rossel at his m.v. light near Fowey in 1954. I first took this fine 'footman' at St. Anthony, near Manaccan, in June 1927 when the larvae were swarming on the trunks of the oak and elm trees bordering the creek between St. Anthony and the hamlet of Carne. On one tree I counted 70 of the larvae, all about fully fed. The trunk was less than 18 inches in diameter and I believe they were all below the 10 foot mark. Those I collected spun their cocoons straight away and I do not think I saw any of the larvae actually feeding. (I remember sending a few examples to Dr. Cockayne and the late H. Worsley Wood.) Certainly there was no evidence that they ate the large lichen with which the trees round the creek were liberally bearded. Probably they had congregated on the lower trunk for pupation purposes, otherwise I cannot imagine what such a large number fattened on in so small an area. Other trees were just as thickly populated.

Until 1953 my visits to the district were few but in two different years I saw solitary examples of the moth in August. In 1953 when I again stayed at St. Anthony I found one or two specimens sitting about during the daytime and three males came to my m.v. light on the only occasion when I used it. In 1954 the species seemed to be more numerous and about a dozen were observed without special effort, sitting on walls, herbage and even on the road. The sexes were about equally assorted, as were they also amongst those that came later to my m.v. light. These visitors, however, were fewer than I had expected after seeing so many during daylight. I think there were never more than seven round the lamp at one time. The dates of working were between the 12th and 25th August of both years.

Presumably *L. quadra* is indigenous to the neighbourhood of St. Anthony and probably to Fowey and other suitable localities in Cornwall. I wonder if there are any further records of its regular appearance there?—W. H. Storey, Fairstead, Long Road, Cambridge. 14.iv.55.

A Note from East Essex.—The following notes may be read as a continuation of those on p. 329 of Vol. 65, No. 11, of *The Entomologist's Record.*

The chief interest of autumn 1953 was some unusually late records. A female *H. convolvuli* L. occurred in the trap on the 21st October. The last *V. cardui* L. was seen on 4th November, the latest it has been seen here. On 8th November the light-trap catch included *A. caja* L. and *A. monoglypha* Hufn.; on the 16th *C. mendica* Cl. (male); on the 29th a second *monoglypha*; on 1st December a third, and finally, on the 9th, one *monoglypha*, three males and three females of *N. obstipata* Fab. and *H. ferrugalis* Hüb.; and on 10th December the last *P. gamma*.

The first butterflies noted in 1954 were *V. urticae* L. and *V. io* L. on the 22nd February. *C. argiolus* L. were seen on 17th April, and *P. napi* L. and *G. rhamni* L., the latter uncommon locally, on the 25th.

The first *P. gamma* L. appeared in the trap on 7th May and during the next day or two *A. cardamines* L., *P. brassicae* L., *P. rapae* L. and *H. phlaeas* L. were seen. The first surprise of the season was a good male of *A. polyodon* Cl. accompanied by 12 *P. gamma* L. on 27th May. By the 29th *gamma* had increased to a peak of 3,167, and the catch included a male of *D. litterata.*

The trap produced nothing out of the ordinary until 23rd July when I was surprised to find a worn male of *E. occulta* L., followed by another next day. As these two specimens were a full month earlier than those recorded from Westmorland by Dr. Neville L. Birkett (*Ent. Rec.* **66**: 240) it seems quite possible that they were the offspring of a female of the previous year. For a month previous to this *P. gamma* had been uncommon, but at the beginning of August numbers began to increase, the catch running into hundreds on most nights. The first *H. convolvuli* L., a male, occurred on the 27th August, and on the 28th a good male *L. solidaginis* Hb. and a very poor female *E. occulta* L. along with 1,845 *gamma.*

The only two *C. croceus* Fourc. of the season were seen on 31st August. On 1st September the trap contained another large catch of *P. gamma* (1,555). The next day a female *D. galii* Schf. was taken, also *L. albipuncta* Schf. (female), of which species a further eight occurred, the last on 19th October. The *D. galii* seemed unwilling to lay; since 16 perfect specimens had resulted from the 1952 female, she was released.

A very noticeable southward migration of *V. atalanta* L. was seen on 19th September when at least 104 were noted during the day, the great majority being observed during the space of about two hours crossing a lucerne field without halting. The day was fine and sunny with a light S.S.W. wind. No other insects appeared to accompany the *atalanta*, though *V. urticae* L. and *P. rapae* L. were feeding at the lucerne flowers. Flight was directly into the wind and only two or three feet above ground except where obstacles were encountered. Apart from this one occasion, the highest day count of *atalanta* was only 12, and the total of the season 227.

A male of *L. vitellina* Hb. was in the trap on 9th October, while a female, which deposited large numbers of infertile eggs, occurred on the 17th.

On 30th October a female *P. unionalis* Hübn. was found in the trap. She deposited freely and a large number of specimens was duly bred. It was found that the larvae could be reared on yellow jasmine, eating both the flowers and unopened buds; as well as the more usual white jasmine. The former food plant simplifies breeding from late autumn females as it is available throughout the winter.

On 1st November the last *V. atalanta* of the season was noted, while the trap produced the first *N. obstipata* Fab. of the year, a female. Next day there was a further *obstipata*, a male, seven *H. ferrugalis* Hüb., six *N. noctuella* Schiff., and, for the time of year, the unusually high total of 327 *gamma*.

The following species, no doubt common in many areas, occurred for the first time, though records have been kept since spring 1946: *N. anceps* Göze 31.5, *A. baja* Schf. 24.7, *P. iota* L. 9.7, *H. rostralis* L. 12.6 and *O. mucronata* Scop. 21.7.

N. albula Schf. 6.8 occurred also in 1949, -50, -51, and *L. varia* Vill. 21.7 in 1949.—A. J. Dewick, Curry Farm, Bradwell-on-Sea, Essex. 14.iv.55.

Epicnaptera ilicifolia L. in Cannock Chase.—I can add two footnotes to Mr. Murray's article on *E. ilicifolia* in the January *Record* (p. 14). In 1895 Dr. Richard Freer of Rugeley, a well-known collector, wrote in this magazine as follows:—"Several members of the Bonney (not Bonny) family took this insect in some quantities about the years 1858-62, or thereabouts. And it was from them that E. (*sic*) Weaver . . . . obtained his knowledge of the insect. The Bonney's are well known and highly respected in this town, and one of them has a cosmopolitan reputation as a geologist. I myself took the larvae in 1879 and 1882 (*vide*, *Entomologist*, Vol. xvi, p. 260). It was always a very local insect and restricted to a small area; probably owing to the fact that the Chase is constantly being fired, and this particular patch apparently escaped, judging from the appearance of the bilberry and heather before it was enclosed. This patch is now partly ploughed up and partly turned into a fir plantation, and the probability is that the insect is extinct. I can assure all entomologists who have *L. ilicifolia* labelled

"Bonney", that they may rely on their being genuinely British. The Bonney's seemed to do comparatively little exchanging; facilities for doing so were not great in those days. When looking over the family collection some years ago, I discovered, in the deal, uncorked, unvarnished and warped cabinet containing it, a drawer, in which were quite 200 specimens of *ilicifolia* in various stages of destruction by grease, verdigris and mites. *Eheu fugaces*!" (*Ent. Rec.*, **6**: 238).

On page 43 of the issue of the *Record* published on 15th May 1896 (vol. 8) appeared the following:—"Cannock Chase.—*Gastropacha ilicifolia,* May 17th, in repose, clinging to a dead sprig of heather, apparently but lately emerged from the pupa. From its great resemblance to a withered leaf it would not probably have caught my eye, had I not luckily knelt down within a few inches of it to pin a small Tortrix.—W. S. Atkinson.—*Zoologist*, p. 3396 (1852)". A month later (15th June, same volume) Tutt printed this further Note on *ilicifolia*:—"Re-occurrence of Gastropacha ilicifolia on Cannock Chase.—On May 17th, when collecting on Cannock Chase with Mr. Basil Burnett, I had the good fortune to find a fine *Gastropacha ilicifolia* at rest. It is a male, and slightly rubbed on the right fore-wing. This find is almost a re-discovery, as the insect has not been taken here for fourteen or fifteen years. It was found some distance from the old locality; but for the present, its exact haunt will remain a secret, in the interests of the insect. The date of my capture and the date of Mr. Atkinson's find, as mentioned in the current No. of the *Record* (p. 43), is a most extraordinary coincidence.— Richard Freer, M.D., Rugeley, Staffs., May 18th, 1896". On which Tutt commented:—"This is one of the most interesting finds of recent years. The date is most remarkable, considering the Current Note".

Those of our readers who contemplate taking their m.v. lamps and generators to Central Wales this year to look for *ilicifolia,* as advocated by Mr. Murray in our January number, will now be able to calculate the date of their holiday to a nicety.—P. B. M. Allan.

Birds and Moths.—Having just finished E. B. Ford's *Moths*, I read the review in *Ent. Rec.*, **67**: 102, with great interest. I too felt that the constant slighting references to the mere collector, of which number I have long had the pleasure to belong, spoilt an otherwise excellent book.

I think Kettlewell was on the right lines with his observations of birds taking his Peppered Moths off tree trunks and I doubt if an abnormal concentration of birds was necessary. I have a large dustbin type m.v. trap on the lawn of my house. I usually examine the egg trays in the morning and then put them back in the trap till the evening when I can release the moths without them being decimated by birds. Sometimes I have not done this and have stood the egg trays, with their moths, vertically round the trap. The result, very clearly seen from my first floor office window, has been interesting. Three kinds of birds come straight to the trap, Blackbird, Great Tit, Robin. The Blackbird hops along the ground and eats only the moths on the grass, swallowing them without flying off. The Great Tit flies on to the rim of the trap, drops down and picks up a moth and then flies back to a mulberry tree. The Robin, as soon as the easier accessible moths are eaten, behaves exactly as described by Kettlewell, flying out from a thick bush straight to the vertical egg trays, hovering for a split second and picking off a moth and then without landing, flying back to the bush. The operation is extraordinarily swift and certain and it is repeated at very frequent intervals. In fact every visible moth is cleared by a total of possibly ten birds in about half an hour. I don't know if the Robin and Tits eat the moths straight away, store them or feed them to their nestlings but their removal of moths is vastly more rapid than their two *betularia* an hour which your reviewer suggested might be their maximum consumption.

I have never seen a bird pick a moth off a tree trunk, but, judging from my robins, it is so quickly done that, unless one saw the moth before the bird had seen it and consequently realised that it had disappeared, one would never guess what was afoot.—R. P. Demuth, Hardwicke, Gloucester. 15.iii.55.

Birds and Moths.—Dr. Kettlewell has kindly allowed us to read a duplicate copy of the paper describing his experiment with birds and *Biston betularia* L., referred to in the review of Dr. E. B. Ford's book *Moths* in our March issue. This very interesting paper, which is called "Selection Experiments on Industrial Melanism in the Lepidoptera", is to be printed in *Heredity* in the near future. By the courtesy of the Editor of that Journal we are able to print the following paragraph from Dr. Kettlewell's paper, which shows clearly that the habits of the birds observed in the experiment were in fact normal ones for the species and that, as our reviewer surmised, other birds also were at work:—

"After the first day of release it was noticed that some of the *betularia* were disappearing from one or two positions so observation of these sites was maintained continuously from a distance through field glasses. H. M. Kettlewell first observed a bird fly up out of the bracken, snatch a *betularia* and return to the ground, the whole incident being over in a flash. Subsequently we were able to watch this bird, a Hedge Sparrow (*Prunella modularis*), regularly at work . . . . At a somewhat later date moths began to disappear from another series of trees, and I and others witnessed a robin (*Erithacus rubecula*) at work, particularly in the late afternoon. This bird was observed in a similar way to the Hedge Sparrow, flying on to the twigs and bracken near to the trees whence it viewed the trunks and branches, making occasional excursions to pick up *betularia*. This it frequently did on the wing, always returning to the ground to eat them, and there subsequently I found wings and remains as an additional check to what had happened. It came as a surprise to us to find the robin and the hedge sparrow behaving in this way, and there were almost certainly other birds at work, unseen by us".

Information Required.—Professor P. Bovey of the Entomologisches Institut at Zurich has written to me as follows:—"Since 1950 our Institute has been investigating the population dynamics of the Larch Bud Moth, *Eucosma griseana* Hb. = *Semasia diniana* Gn., and in this connection I am endeavouring to estimate the range of this insect in Europe as exactly as possible. So far as Great Britain is concerned I know only of Meyrick's note in his Revised Handbook of Brit. Lepidoptera (1927) that this species occurs as far north as the Clyde. I should very much appreciate any more precise details of the distribution of *Eucosma griseana* in Great Britain. Furthermore it would be very valuable to me if I could find out what specimens are preserved in British collections, showing localities and dates of capture". If any reader of the *Record* can supply me with the information for which Professor Bovey asks I will pass it on to him at once.—D. K. McE. KEVAN, School of Agriculture, Sutton Bonington, Loughborough, Leics. 6.iv.55.

PRESERVING LARVAE.—In a back number (15th March 1905, vol. 17, at page 73) of this magazine I have come across the following:—"*Preservation of Larvae for Scientific Work.*—Larvae in glycerine shrink. I always put them in 5, 10, 15 and 20 per cent. solutions of 'zinc chloride', and then in 50, 60, 70 and 80 per cent. solution of glycerine. The result, however, does not then seem to be satisfactory, and the larvae seem by no means well adapted for later preparation. What treatment do your readers consider best, so that the larvae are suitable for work and reference?—M. Gillmer, Cothen (Anhalt), Germany".

My own experience has been that alcohol (which seems to be used generally), even if the larva is immersed for a few days in each of a number of graded concentrations, starting with 10% and ending with absolute alcohol, causes distortion of certain tissues, rendering subsequent dissections unreliable. The only preparation I know of which does not seem to have any drawbacks at all, preserving indefinitely the colours and internal tissues as they were in life, is the fluid used in museums to preserve anatomical preparations. I found the formula in *The Lancet* many years ago (16th November 1901) and have used it ever since. It is as follows: salt 5 ozs., chloral hydrate 1 oz., saltpetre 1 oz., distilled water 100 ozs. The larva should be left in this solution for three months; then put into a phial containing fresh solution and left there for a further three months, when this process should be repeated. After the third change of fluid the phial must be hermetically sealed.—P. B. M. ALLAN.

ERRATUM.—May I be permitted to point out a mistake in the March number of the *Record*? On page 80, in my notes on the wasp *Philanthus triangulum* F., I stated: "*P. triangulum* was recorded from Sandown Bay in numbers in the year 1951". The year should, of course, have been 1851.—S. WAKELY, 26 Finsen Road, Ruskin Park, London, S.E.5.

Our readers will be sorry to hear that Dr. A. A. Cockayne has resigned from the editorship of this magazine. Although he has been confined to his room for the last three years he has continued to take an active interest in the affairs of the *Record*, to the editorial panel of which he was elected in 1921. We trust that he will be spared for a long time yet to continue his learned studies on the never-ending problems of aberrancy in Lepidoptera. The announcement of his successor will be made in our next issue.

Mr. Allan's illness accounts for the absence of Current and other Notes from this issue and emphasizes the need of further editorial assistance. If any of our readers are willing to help editorially we shall be very glad if they will write to our Treasurer.

Fifty Years Ago

Euvanessa antiopa at Folkestone.—On 8th September, while on my holidays at Folkestone, I had the pleasure of seeing a specimen of the above in the warren; it was a windy day, but I had a good view of it, as it was carried over a clump of bramble bushes. I waited about for half-an-hour, in anticipation of seeing it again, and went over for several mornings in hopes of its re-appearance, but had no luck.—W. E. Butler.

—And at Dover.—Concerning the note of *Euvanessa antiopa* being seen at Folkestone on 8th September might this not have been an escape? Whilst staying at Dover during August, I noticed in a shop window a row of *E. antiopa*, stating "bred this season, 4d each". It would be interesting to know if this was the case.—C. P. Pickett.

Black Larvae of Abraxas grossulariata.—My experience in breeding from black larvae has been most disappointing. One of the most unsatisfactory lots of black larvae I ever bred came from an old bush growing in a densely smoky district, close to the Thames, in London, where bushes were scarce, and the race no doubt localised, and from which, this year, many hundreds of larvae did not yield a single decent aberration.—B. W. Adkin.

Obituary.

Charles Beaumont Antram, who died at his house at Brockenhurst, New Forest, on 19th March 1955, was eighty-one years of age. He started life in India in 1900 as an assistant on a tea estate in Cachar and became a pioneer entomologist to the Indian Tea Association. His interest in pests and subsequent investigations came to the notice of Dr. Harold H. Mann, Scientific Advisor to the Indian Tea Association. In collaboration with Dr. Mann and Dr. Hope he wrote a number of papers on tea pests, including "Mosquito Blight of Tea" and "Bark Eating Borers of Tea". His "Butterflies of India", extensively illustrated with drawings by the author, was published in 1922.

Antram settled down in the south of England on his retirement in 1930 and continued as a hobby his study of British butterflies. He built up and maintained a small exchange of specimens service with contacts in many parts of the world. His final effort was the completion of a handy pocket-size volume entitled "The Collecting and Preservation of Butterflies and Moths" with practical hints for collecting in the field, which was published at Lymington in 1951.

A. B. A.

It is with the deepest regret that we announce the death of Mr. H. W. Andrews, F.R.E.S., who managed the business side of this magazine for twenty-seven years, retiring from it in October 1951 (see *Ent. Rec.* **63**: 197). He died on 9th April at Highcliffe, Hampshire, having been in poor health for some time.

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EXCHANGES AND WANTS

Wanted.—Scarabaeidae from all parts of the world. Also literature dealing with this subfamily.—*589321 Sgt. Rogers, Sergeants' Mess, R.A.F., Yatesbury, Calne, Wiltshire.*

Wanted.—Mahogany cabinet, about 20 drawers; Gurney or Brady preferred.—*Clifford Craufurd, Denny, Galloway Road, Bishop's Stortford, Herts.*

Wanted.—Larvae of *Agrotis segetum*, *Euxoa nigricans* and *Triphaena pronuba* for experimental work. Please report to *D. K. McE. Kevan, School of Agriculture, Sutton Bonington, Loughborough, Leics.*

Wanted.—Living female pupae of *Saturnia pavonia* or any other large female pupa (*Laothoe populi*, *Smerinthus ocellata*, etc.) for work on assembling scents. Cash or exchange.—*Dr. H. B. D. Kettlewell, Genetics Laboratory, Department of Zoology, University Museum, Oxford.*

Wanted.—Distribution records in Great Britain and Ireland (especially Ireland) of *Erebia epiphron* Knoch (Small Mountain Ringlet). Localities will be kept secret if so desired.—*Dr. J. F. D. Frazer, Stone House, Boxley, Maidstone, Kent.*

Wanted.—Old insect sale catalogues pre 1952. Also early Bulletins of the Amateur Entomologist's Society. Exchange for other books or cash.—*L. Christie, 137 Gleneldon Road, Streatham, London, S.W.16.*

Wanted.—Lepidoptera of North West Surrey. I am preparing an account of the distribution of Macro-lepidoptera and Pyralidina in Surrey, north and west of the line Weybridge, Woking, Worplesdon, Normandy, Ash Vale (inclusive). Records with full data would be welcome, even of common species: Pyrales and Plume Moths particularly needed.—*R. F. Bretherton, Ottershaw Cottage, Ottershaw, Chertsey, Surrey.*

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Recent Records of the Mole-Cricket from Hampshire and Surrey

By D. R. Ragge.

In view of the requests for recent records of the mole-cricket which have appeared in this journal during the past year (**66** (7-8): 203 (Dr. M. Burr); **67** (1): 21-23 (Mr. P. B. M. Allan); **67** (3): 91 (Mr. D. K. McE. Kevan, it seems worth putting on record the following information on post-war occurrences of this insect in Hampshire and Surrey.

Hampshire.

Outbreaks of the mole-cricket as a pest occurred at Christchurch in 1947, 1948, 1950, and 1951, during the months May, July, and September; the plants damaged included potatoes, onions, and carrots. This information was obtained from the Plant Pathology Laboratory of the Ministry of Agriculture. Fisheries and Food, Harpenden, and I am much indebted to Mr. H. W. Janson of this Laboratory for supplying it and to Mr. H. M. Edelsten for initiating the correspondence. No records of this insect have been received at Harpenden since 1951.

A live mole-cricket was brought to the British Museum (Natural History) last year by Mrs. J. Dent, who found it on the 23rd August, 1954, at Broughton, nr. Romsey, in a garden bordering a water-meadow.

Surrey.

The Plant Pathology Laboratory also has a recent record of this insect from Surrey. A potato crop at Tilford, nr. Farnham, was damaged by mole-crickets in July, 1951.

There is a mole-cricket in the British Museum (Natural History) which was collected by B. Vesey-Fitzgerald at Wrecclesham, nr. Farnham, in May, 1948.

Though without doubt a rarer insect than in the last century, the mole-cricket is evidently still far from extinct, and, if the interests of a larger number of field entomologists could be aroused, it would in all probability show a current distribution far exceeding the two counties dealt with here.

A Habit of *Archiearis parthenias* Linn.

By E. E. Johnson.

A. parthenias has always been a great favourite of mine. When I made that remark to a friend I received a blank and stony stare and then a quiet smile; and so, for anyone who may be inclined to be sceptical, I will hasten to say that it is not on account of, and has nothing to do with, its tricks and pranks. It is because I look upon it as a harbinger of the new season of the Year, with all the unforeseen good things to come, or perchance not so good, and the first one I see always gives me a thrill. Sure as the rising of the sun, one day early in March it appears, a single little fairy like a wind-blown petal floating by in the chilly wind as I walk near the silver trunks and bare black maze of the still leafless twigs of the birches. Too early to carry a net and with thoughts far from Entomology, my walk is brought up suddenly and I know that the winter is really over; I return with a sense of relief and real happiness; henceforward my thoughts will be centred on the Lepidoptera.

This easy-to-catch looking little thing, but as deceptive as innocent looking, is as clever and cunning and has just as many wiles as a fox, and in fact is just like one, its pattern being quite similar: it is also known that upon occasions it goes to earth. Many years ago now one gave me a very good run, although the point made was not a long one. I put one up from cover, and getting away in full cry was well to the front, taking some nice jumps with ease, when suddenly a Stonechat appeared out of the blue and the little fox was chopped in the air, my only consolation being that I was in at the kill.

From days of old *parthenias* has been the cause of collectors both young and old receiving ribaldry from their friends, and as regards the common herd who love to watch a man with a net, they consider themselves well repaid for loitering and obtain their full measure of enjoyment if they happen upon a collector performing acrobatics, aerobatics, and breaking speed records, doing battle with *parthenias*. And the not-so-young may not come out of the battle unscathed, as I know from personal experience: for using unaccustomed muscles and straining at ligaments I recently called off the fray and found I was left with a heavy limp, just able to reach my faithful "two wheeler" which is so convenient to bring right up on to the battleground.

I do not want *parthenias*, but I have been after it again this year, for I am interested nowadays in varieties of Lepidoptera and I wanted a "yellow one", or some such worthy specimen, and this recent encounter is the reason for my writing this article; for I have now at last discovered the secret of the Orange Underwing.

A. parthenias is easy to catch! Many of the Lycaenidae, as we all know, congregate at the end of the day in a chosen spot to rest for the night. So does *parthenias*! Yet I have never read nor heard of this being recorded. My discovery was made by coming upon a sandy track some dozen yards wide and a hundred yards long only, running between birch trees, which I will call the "alley". It was well sheltered compared with a good deal of the ground.

During the day I had netted only two and seen the usual odd ones sail by from time to time over a large area including the "alley", which I had traversed several times. Just before three o'clock, however, I found myself standing in the "alley" and was surprised to see odd *parthenias* arriving and flying along the track lethargically at netting height. Moreover they did not at once gain height as they normally do if struck at and missed, but would often flap wings awry as they do when wind-blown through the small birch trees, out the other side and into another at low height. The number increased by time and in half an hour I had netted over twenty, and had five in the net at once. I may here mention that the only net I use is a small folding pocket net a foot across, and a stick not much more really than a handle of eighteen inches in length: quite an absurdity of course for use against *parthenias*. They were still flying about, but I sat down and examined what I had and released them. I then wondered what this was all about and dispelled the first thought of a newly emerged female or two near at hand, as I was netting both males and females. I packed up and decided to return for investigation the next day.

This I did, and as before traversed the "alley" during the day without seeing anything more than on other parts of the ground; the odd one sailing by every now and then. But well before three o'clock I stood in the "alley" and the same thing commenced again as on the previous day, and I sometimes had two or three in the net at once. I went again on further days, some with poor weather conditions, when hardly a *parthenias* was seen all day, but on going to the "alley" about three o'clock sure enough they would gradually come in from apparently nowhere. They came for the purpose of resting there for the night, as sometimes on making a sweep at a specimen one or two others would be disturbed and fly out of the small birches nearby.

And now with summer to come—or not to come—and with all the events and happenings of the season before me, I walk again through those birches, now in full leaf and tracery; but they do not look the same, nor does the place seem as it did a month ago. There is something missing; it seems a long time ago that *parthenias* flew there. And longer still will be the dreary and slow moving winter days to come before the first little orange dancer again appears among the birches, on the stage which I love best.

Regrets and Recollections

By Colonel H. G. Rossel.

Regrets are always futile, but in retirement I often wish I had taken more advantage of opportunities for collecting Lepidoptera during my thirty years' service with the old Indian Army. Much of one's service was of course spent in stations on the Punjab plains or in barren spots suffering the extremes of temperature on what is now the Afghan frontier of Pakistan; while the pursuit of big game with rifle or movie-camera in the jungles of Southern India occupied many of my leave periods. It may seem in theory that this would give plenty of opportunity for butterfly collecting; but after perhaps several nights' sessions, often drenched by thunderstorms, and of necessity sleepless, awaiting the return of a tiger or leopard to its "kill", or perhaps dead-beat after many hours' hard tracking in tropical heat, sleep was more tempting than waving a butterfly-net in a jungle clearing at noon-day!

However, over the years a certain amount of desultory collecting of this kind was done, to the unconcealed surprise and amusement of one's trackers. The Papilios were my chief quarry there, as well as some of the larger Pieridae and Danaidae. Kashmir was another matter, and had I been bitten by the collectors' ichneumon in those days I should have concentrated on the Parnassiidae, the "Snow Apollos", many of which I must have met at 12,000 feet and over, during treks with my wife for botanizing and sketching, as well as on my stalking grounds on the higher valleys and glaciers. As the Western Himalayas area is in the Palaearctic Region there are many interesting races of European butterflies present at various seasons and altitudes.

The earlier Mesopotamian campaign of 1915-18 was too dust- and disease-ridden to admit of collecting anything but flies in their myriads;

but two years in N.W. Persia, after the Armistice, might have produced some species from this very ancient source of civilization of interest to the initiated—none of whom I ever met.

The earlier part of the second War found me in the Ceylon jungle, based on Trincomalee, and with the experience now attained a certain number of species were collected in spare moments. On the whole, however, Ceylon is a disappointing area after collecting in India, the usual 'island'' effect being to limit species numbers to less than those found on the neighbouring mainland, with a considerable number of local races. The country (only the size of Ireland) is interesting in that it is still three-quarters jungle and is sharply divided into a wet and a dry zone, the limits of the S.W. and N.E. monsoons producing, in some places, totally different types of vegetation within a mile width of country, *i.e.* bananas and coconuts on one side and dry thorn scrub on the other. This naturally has much effect on the races of Lepidoptera.

The sight of the great yellow and black Troides, Ornithoptera, or "Birdwings", slowly sailing over a deep jungle ravine in the wet zone, is worth going a long way to see, as is the big blue and black tailless *Papilio polymnestor*, which I have seen even in the outskirts of Colombo. *Hebomoia glaucippe*, the "Great Orange-tip", 150 mm. across, is an impressive jungle sight, as is *Amblypodia amathes*, the "Large Oak Blue", as brilliant as a Brazilian *Morpho*. Incidentally, the association of certain species of Lycaenidae with, and their protection by, tree ants was noted by European naturalists in India a hundred years ago.

Many butterflies of the "Oriental Region", especially the Papilios, throughout dry areas and in the hot weather, will be found settled in myriads on damp patches on the sand and earth of jungle roads, and specimens can be selected there without much difficulty. Another very marked phenomenon, and one that is receiving study at this time, is the mass migration of millions of certain species, particularly Danaidae and Pieridae, occurring periodically over large areas and in many cases ending in a flight straight out over the Indian Ocean. I remember seeing the same thing in the case of hawkmoths—*ocellata* among them, I think—when they covered the hospital ship in which I was being invalided from Mesopotamia, a day out from Karachi, in November 1916.

From Ceylon I took my battalion to Burma, and starting at Tamu on the Indian border we worked our passage with 14th Army nearly 1,000 miles to Rangoon. Here, of course, I found a really good lepidopterous region (Assam and North Burma being possibly one of the richest areas in the world in this respect), though I had little time or opportunity to devote to it personally. However, I trained one of my Indian orderlies to collect for me with envelopes and a net made of rattan and condemned mosquito netting, at odd moments, and he shortly showed skill and interest, exploring new areas within the picquet area when a new camp was made, with slung rifle and net in hand. After the recapture of Rangoon I placed my H.Q., by request of the "abbott", in the compound of a large Buddhist monastery outside Pegu and found there a number of butterfly species I had not previously met; the monks raised no religious objection (though much amusement) to this collecting. I obtained here a series of the great *Papilio memnon agenor*, which has three totally distinct female forms—hence its "trivial" name of "the Great Mormon". Brigadier Evans, in his standard work on Indian butterflies, gives the total species in the area Baluchistan-Assam-South Burma-Ceylon as 1,438, of which my occasional and desultory collecting produced only 200 or so. However, I took very few Lycaenidae and Hesperiidae, which between them make up over half the total. I found Mr. Antram's book, *The Butterflies of India*, invaluable for identification. As regards Ceylon, I am lucky in possessing, through a friend's generosity, a copy of Woodhouse and Henry's *Butterfly Fauna of Ceylon* with its coloured plates. This is a monumental work.

It will be noticed that I have said nothing about the moths of the areas mentioned. This seems a largely untouched subject and in my limited experience I have not met anyone who attempted serious moth collecting though there are no doubt expert authorities, such as Mr. Macropoulo, on the subject. The few moths I came across by chance were mostly Sphingidae or Saturniidae, *e.g.* an *Acherontia atropos* L. flew into my bivouac just before the 1945 Irrawaddy crossing at Pagan (I still have it) and my Sappers brought me several Atlas Moths at Pegu during the subsequent monsoon. But the lack of facilities for identification alone made moth collecting too unrewarding except to the serious entomologist.

My collecting was normally done with a kite net (nothing smaller was much use), and I never used a killing-bottle but 'pinched' my captures, which I have always found effective.

In conclusion, I always remember my old Kishmiri shikari, Mahommed Khan, viewing with veiled cynicism my antics with a net in the Vale of Kashmir. When asked his ideas on the subject he said, "Well, Sahib, it's a form of hunting after all, and there's nothing else to kill down here".

Certainly one point of view!

An Entomologist in Argentina

XIII. The Calchaquí Valleys

By Kenneth J. Hayward, D.Sc. (Hon.), F.R.E.S.

To the west of Tucumán and hidden behind high mountains lie what are known as "the valleys". These extend for some two hundred and fifty miles from the plains of La Rioja in the south through Catamarca and a probing finger of Tucumán till they are lost in the rising ground of western Salta. They are sandy valleys, covered with xerophilous scrub that is enlivened here and there by green patches of precarious cultivation, or the darker green of vineyards whose grapes produce a wine of passing excellence. Decaying forests of age old algarrobos are evidence of a slowly changing climate.

That portion of this area of which I write was formerly peopled by the Calchaquí, one of the tribes of Diaguita, and so bears their name. Commencing near the small town of Santa María it extends northwards for some fifty miles beyond Cafayate. Nowhere more than ten or twelve miles wide, it is contained to the east by mountains that slope gently upwards, home of puma and guanaco and along whose base wanders the sandy bed of the river Santa María, to the west by a much higher and more rugged range. The valley lies at a height of about six thousand feet and boasts a climate hard to better. The air is dry and even in the height of summer the heat is not oppressive. Though night temperatures may in winter fall to as low as seven or eight degrees Fahrenheit, the days are warm and sunny. In late spring and summer storms are frequent in the mountains, but it is seldom that rain falls over the valley proper during the day, nor is there any during the remainder of the year.

I first came to know Cafayate about which these notes are written in the summer of 1944, and falling in love with its peacefulness and old world charm I have since returned to it on every possible occasion.

To reach the valley from Tucumán one must take the road through Tafí del Valle to cross the mountains at some eleven thousand feet, or go by way of Salta in the north. Whether the traveller chooses the southern route or the longer way by Salta, he will have unfurling before him throughout his journey an ever changing panorama of forest and rugged hillside that he will long remember.

Prior to my going there I do not think any collecting had been attempted in this region, either zoological or botanical. It provided virgin territory of no little interest, an upland valley isolated from the influence of surrounding areas by the high containing mountains and to the north and south by arid desert.

During my early visits I collected insects in general, but as the years passed and it became increasingly difficult to find fresh species, I began to devote my efforts each season to the study of some different group, with the result that we now have a very complete picture of the insect fauna. I have also collected plants, and this year of writing, the major fungi. Of the latter I found more than a hundred species, a large number for so arid an area, those of purely desert origin proving of more than common interest. In the winter of 1953 I spent a short fortnight in Cafayate with two of my Department's taxidermists, collecting birds and mammals. Probably the number of bird species that visit the valleys during the course of a year is around four hundred. During our stay we recognised eighty-five and were able to bring back with us the skins of more than sixty species, one of a bird previously only known from Bolivia and four others winter visitors from southern Patagonia.

Compared with other parts of Argentina the Calchaquí valleys are far from rich in insects. In the twelve years that I have been collecting there I have found but fifty-six different butterflies, less than five per cent of our known forms, and of these three or four appear to have been no more than strays. Similarly we have recorded less than four hundred of the five thousand or so Argentine beetles and it is doubtful if further exploration will enable us to add many more. And so it is with the remaining orders; only the ants with just over fifty species make a showing. I quote these figures as they give a certain insight into the fauna of these high valleys.

In winter one sees no insects except perhaps an odd wasp or worn specimen of one or other of those common butterflies which are with us all the year, specimens tempted out by the warmth of the early afternoon sun; even ants are conspicuous by their absence. Only by searching under the loose bark of trees may an occasional colony of some chrysomelid or coccinelid beetle come to light or perhaps a stray hemipteron. I have never so far collected there in spring, that is from September till December, but I feel confident that any insects appearing during that period will also be present in summer.

Though the number of species is not great, not a few of those to be found are of considerable interest. I do not think they should be classed as rare, but rather as species poorly represented in collections. The word *rare* applied to insects is to a great extent relative. The scarcity in collections of many species depends only too often on our lack of knowledge of their habitat and habits. Prior to my collecting in Cafayate the Tucumán swallow-tail, *Battus madyes tucumanus*, was considered very scarce and was considered a prize even by our local collectors, as was also the nymphalid *Phyciodes saladillensis*, in fact in our extensive Tucumán collections we were without a single representative of the latter. Of these I have found the swallow-tail to be common throughout the valleys in shady spots near water, and although somewhat difficult to net in flight it is easily taken as it hovers before the bronze or yellow flowers of *Cestrum*, whilst the *Phyciodes* is quite plentiful along the foot of the western mountains.

The fact that almost all the land which is not arid is devoted to vineyards or to the growing of tomatoes or peppers has resulted in the wild flowers being for the most part confined to the hedges and to isolated corners, so that in these places there is considerable concentration of insects which makes collecting less arduous than it would be if they were more widely scattered. Whilst most of the more common flowers appear to have remarkably little appeal to the local insects, exception must be made in the case of a sweetly perfumed creeper (*Mikania* sp.) which is generally covered with cantharid and astylid beetles and to the male blossoms of a *Baccharis* whose more plumose female flowers are never visited. This latter plant grows in profusion along the sandy river beds and in some places attracts enormous numbers of insects of every kind, especially small beetles, and from it I have taken more than twenty different species of cerambycids. There is however a curious problem connected with this *Baccharis* for which I can suggest no reasonable solution:

About five hundred yards to the north of Cafayate is the river Chuscha and a similar distance to the south the Lorohuasi, both situated in apparently identical surroundings and similar as far as I can see in all respects. For what reason do insects assemble in such quantities on the *Baccharis* that grows along the southern river *below* the ford, whereas you can collect for a whole morning *above* the ford or along the Chuscha and except for a common *Polistes* wasp your bag will be smaller and less rich in species than that often to be obtained from a single plant in the more favoured area? To add to the puzzle, the *Baccharis* plants growing above and below the ford on the Lorohuasi are separated by a gap of considerably less than a hundred yards.

This is but one of the problems I have come across in Cafayate. Another is the reason why the meloid beetle *Pyrota wagneri* when it makes its annual appearance about the middle of February confines its attentions to a single *Prosopis* bush, nor will any amount of searching reveal its presence elsewhere in the neighbourhood. One day it is not there, the next the selected bush is teeming with feeding, copulating, beetles that in two or at the most three days will vanish overnight as suddenly as they appeared, leaving no stragglers, only a defoliated mesquite bush to remind one of their visit.

Collecting in the immediate neighbourhood of Cafayate is more or less confined to the scrub desert and adjacent vineyards that slope upwards to reach the nearby western mountains about a mile away, to the lanes and fields and rough weed-covered ground that to the south-east of the village border the Lorohuasi and to a small damp wood of weeping willows astride the northern stream. Outside these areas one finds but little and no species that are not more abundant in the places mentioned.

If one is prepared for a day of tramping over sand and stones and collecting amongst rocks and boulders and thorny scrub, the two *quebradas* that lie back in the mountains some twelve hundred feet above the village and through which the rivers reach the plain are well worth visiting. In these gorges storms are frequent and though the soil is poor and shallow, the vegetation is more luxuriant than in the valley, its greenness brightened by patches of colour where flowering plants have formed a colony.

Though always of interest, the desert above the village holds little for the entomologist. Small black scarab beetles scamper over the sandy soil, seemingly always in a hurry, or there may be a sombrous tenebrionid or colourful velvet ant. Where bushes are in flower there will be small *Thecla* blues and if one is lucky and the possessor of sharp eyes, there are four large buprestids to be found, two grey on a *Prosopis*, two shining green on an *Acacia*. These are fine insects and best looked for in the evenings when they are less active, so filling in a period of the day when there is little other collecting to be done. They are not easy to find as on the approach of danger they sidle round the twig on which they are resting, placing it between themselves and the intruder, but being inquisitive they cannot long resist poking out their heads to have a look, and so give themselves away.

Although this desert is unproductive, it is an attractive spot to wander over early on a summer's morning, whilst the air is still crisp with the coolness of the night and heavy with the fragrance of the many aromatic plants. There is a stillness broken only by the song of birds and the distant murmur of the water flowing through *acequias* and the sun is gently warming. Here are but few flowers beyond the many coloured zinnias that grow amongst the boulders and the yellow daisies, these latter in one place forming a golden carpet some acres in extent that seen from afar is of incredible beauty.

One evening as I was returning across this desert in the fast gathering darkness after watching a colony of cavies at their warren, I sat down for awhile thinking that perhaps I might see a fox, for they are common here and far from shy. Presently as I rested on my boulder, as though at a given signal, the silence all around me was broken by the song of many grasshoppers. Never before have I heard them in such numbers and the stillness accentuated the volume of their effort. I sat enchanted listening to them for some time and only when the noise of my moving startled them did they cease. It was possible to distinguish at least three separate species, perhaps there were more.

To the south of this area lies Cafayate's best collecting ground. Here are vineyards that rest against the mountains whose bush and cactus covered lower slopes give shelter from the winds. Around these vineyards are weed and creeper covered verges that yield good hunting and where sweeping will reveal many a small insect whose presence would otherwise escape attention. Here too at the foot of the mountains runs a large *acequia*, shaded by weeping willows and Carolina poplars where there are many tipulids and other insects, lovers of damp shady spots.

One might perhaps expect to find aquatic insects breeding in these *acequias* that carry the water from the rivers to the fields or to the artificial storage ponds, but this is not the case. On the one hand their flow is probably too swift, but the reason is more likely to be found in the fact that their use is often not continuous so that they may for days be dry. Nor do many aquatic insects pass their earlier stages in the *represas* or storage ponds where the water level is in continual and rapid change as it is drawn off for irrigation, even at times in the case of the smaller ponds to the extent of leaving them empty. To find such insects in the neighbourhood of Cafayate one must go to some shallow pools that have formed in the fields to the south-east of the village in the pits dug many years ago when the soil was removed to make adobe bricks. These pools now overgrown with rushes and other water plants have an attraction all their own, and they have been adopted by coot and water-hen and are a gathering place for the birds from far around. It is here too that the nymphalid *Anartia jatrophae* has formed a colony, a butterfly that seems strangely out of place in this dry upland valley.

Whether collecting plants or birds or insects or trapping small mammals, the valleys fascinate me as few other places. The air is soft and the colours of the mountains that surround them change with every passing minute from the steely blues of early morning to the sunlit colours of the later day. As one rambles through them one sees on every side reminders that here Calchaquí and Quilmes and other tribes once lived, terracing and tilling the poor land and hunting, warring amongst themselves till that day when common danger drew them together and they made their last courageous stand against the invading conquistadores. Scattered everywhere over the desert is a sprinkling of potsherds, and often the boulders that strew the valley bear graven symbols or show, worn deep by use, the mortars where the women crushed their grain. Their cemeteries yield rich treasures in stone implements and pottery and in those places where they lived it is possible even yet to trace amongst the overgrowth of bushes the ruins of their houses, whilst in the mountains their fortifications remain as when they were first erected. Sometimes when in the stillness of the evening I look down on this scene, when night is already closing over the valley and only the further hills still touched by the last rays of the sun are aflame with colour, my thoughts wander back over the centuries and it seems for a moment that I am looking on to the land of yesterday.

The Lepidoptera of the Lesser Skye Isles

By J. W. Heslop-Harrison, D.Sc., F.R.S.

(*Continued from page 147.*)

Dasypolia templi Thnb.—At sallows near Balachuirn, Raasay, as var. *ochracea* Tutt; the foodplant on Raasay must be *Angelica sylvestris* and not *Heracleum Sphondyllium*; also recorded from Canna.

Antitype chi L.—Typical examples have been obtained on Raasay, Soay, Rhum, Eigg and Canna.

Eupsilia transversa Hufn.—Larvae beaten from birch, and imago taken at sallow on Rhum in 1946.

Omphaloscelis lunosa Haw.—Not at all rare in S.W. Raasay, Rhum, Eigg and Canna; var. *obsoleta* Tutt was also taken.

Agrochola lota Cl.—Common as larva on *Salix aurita* at Cleadale, Eigg, and on the Allt na h'Uamha, Rhum.

A. circellaris Hufn.—On Rhum in 1946 and Canna.

Citria lutea Strom.—Odd examples found on Raasay, S. Rona, Rhum and Eigg; also Canna.

Cirrhia icteritia Hufn.—Very rare near Balachuirn and Inverarish, Raasay, and also in a dry gorge near Cave Bay, Rhum.

Apatele leporina L.—Larvae, displaying considerable variation, beaten from birch on Soay and Rhum.

A. psi L.—Larvae obtained from whitebeam, birch and bracken on Rhum, from birch on Soay and Eigg; recorded from Canna.

A. menyanthidis View.—Larvae common on *Calluna*, *Salix*, *Myrica*, etc. on Raasay, S. Rona, Scalpay, Longay, Pabbay, Soay, Rhum, Eigg and Canna. The usual form is var. *scotica* Tutt, but a single black specimen of var. *nigra* Harrison was taken on Scalpay.

A. euphorbiae Sch.—The ssp. *myricae* Guenée abounds on S. Rona, but is distinctly rarer on N.W. Raasay and Fladday. It has a wide distribution on Rhum and occurs on Canna.

A. rumicis L.—Typical forms, with the melanic var. *salicis*, are common on all the isles; the preferred food is *Iris pseudacorus*.

Amphipyra tragopogonis Cl.—Not at all common; Raasay, Rhum, Eigg and Canna.

**Apamea lithoxylea* Schf.—Recorded from Canna.

A. monoglypha Hufn.—Very abundant everywhere with the melanic variety *aethiops* Stgr.

A. crenata Hufn.—Of general occurrence in the isles with vars. *ochrea* Tutt, *flavo-rufa* Tutt, *putris* Hb., *combusta* Haw. and *nigrorubida* Tutt.

A. sordens Hufn.—Common enough about buildings on Raasay, S. Rona, Scalpay and Rhum.

A. furva Schf.—Far from rare on Rhum, also on Canna.

A. obscura Haw.—At sugar on Rhum, 1946; also Canna.

A. secalis L.—Plentiful on all the isles at rush and ragwort flowers; specimens taken exhibit the whole range of British variation.

Procus strigilis Cl.—Common at rush flowers on Raasay with var. *ferra* Warr., *suffumata* Warr. and *aethiops* Heyd.; also on Rhum.

P. versicolor Bkh.—The first recognised British examples of this species were captured on Raasay in 1935; also found on Rhum on August 8, 1945. These determinations were made after critical examination of mounted genitalia.

P. latruncula Schf.—Found on Raasay, S. Rona and Scalpay.

P. fasciuncula Haw.—On the same islands as well as on Soay, Eigg, Rhum and Canna.

P. bicoloria Vill.—Scarce on Raasay, Soay, Rhum, Eigg and Canna.

P. literosa Haw.—Very rare at sugar in Raasay House woods.

Luperina testacea Schf.—On wood edges and banks, Raasay, Rhum, Eigg and Canna.

Euplexia lucipara L.—Larvae common on bracken, Raasay, S. Rona, Rhum, Soay and Canna.

Hyppa rectilinea Esp.—One at rest on Kinloch Castle, Rhum, on June 6, 1947.

**Thalpophila matura* Hufn.—Recorded from Canna.

**Laphygma exigua* Hb.—Also noted on Canna.

Petilampa minima Haw.—Captured in Glen Guirdil, Rhum; also found on Canna.

**Caradrina alsines* Brahm—Reported from Canna.

**C. blanda* Schf.—Also found on Canna.

C. clavipalpis Scop.—Very common everywhere.

Celaena haworthii Curt.—Netted amongst cotton grass on Raasay, S. Rona, Scalpay, Soay and Rhum

C. leucostigma Hb.—One taken near Kilmory, Rhum.

Hydraecia.—Copious collections of representatives of the old *Hydraecia nictitans* complex were made in the Skye Isles in 1935 and subsequent years. The insects thus obtained were dissected carefully, and their genitalia, both male and female, critically examined with the following results which, when published in 1937, provided the first records of the various species for the Isles of Raasay, S. Rona, Scalpay, Soay, Rhum, Eigg and Canna.

Hydraecia oculea L.—Not seen elsewhere than on Soay where it was taken from ragwort in 1937.

H. paludis Tutt.—Only a very small percentage of the Hydraeciae taken from ragwort and other flowers turned out to belong to this species; found on Raasay, S. Rona, Scalpay, Rhum and Canna.

H. lucens Freyer—Not rare on all the isles and very variable.

H. crinanensis Burrows—Probably the commonest of the whole complex, and obtained on Raasay, S. Rona, Scalpay, Soay, Rhum, Eigg and Canna.

H. micacea Esp.—Very common everywhere with vars. *grisea* Tutt and *brunnea* Tutt.

Heliothis peltigera Schf.—Larvae of this immigrant were collected from *Artemisia Absinthium*, at Kilmory, Rhum.

**Arenostola pygmina* Haw.—Recorded from Canna.

Eustrotia uncula Cl.—Scarce in a damp field on the lower slopes of Mullach Mor, Rhum.

Bena fagana Fab.—Rare as larva on birch and oak near Inverarish, Raasay.

Euclidimera mi Cl.—Local along Kinloch Glen, Rhum, and on Muck.

Ectypa glyphica L.—Two at flowers of *Lotus corniculatus* near Kilmory, Rhum.

Colocasia coryli L.—Common on Raasay, S. Rona, Scalpay and Soay; larvae generally on birch but also on hazel.

Plusia chrysitis L.—Not really common; Raasay, Rhum, Canna, Eigg and Muck.

P. bractea Schf.—In Kinloch woods, Rhum, and on Canna.

P. iota L.—Somewhat rare, only seen on S. Rona of the northern isles, but taken at several points on Rhum; also at Canna.

P. pulchrina Haw.—Larvae at Kinloch, Rhum, also near Poll nam Partan, Eigg, and on Canna.

P. festucae L.—Along Loch Scresort, Rhum; also on Canna.

P. interrogationis L.—On the moorlands of Raasay, S. Rona, Soay and Mullach Mor, Rhum.

Abrostola tripartita Hufn.—Larvae beaten commonly from nettles on all the islands.

Scoliopteryx libatrix L.—Larvae obtained from *Salix aurita* near Kinloch, Rhum.

Phytometra viridaria Cl.—Widely distributed on moors on Eigg and Rhum.

Hypena proboscidalis L.—Abundant wherever nettles grow.

H. rostralis L.—An unexpected species netted at Kinloch, Rhum, near hops.

Zanclognatha tarsipennalis Tr.—Not at all rare along the Arish Burn, Raasay, in 1951; also a great extension of range.

Geometra papilionaria L.—Odd specimens on Raasay, Soay, Rhum and Canna.

Sterrha aversata L.—Only on Soay.

S. biselata Hufn.—Common in the Kinloch woods, Rhum, also on Canna.

Scopula ternata Schr.—Near Osgaig, Raasay, and Kinloch and Rudha na Roinne, Rhum.

Cosymbia pendularia Cl.—Larvae from birch, Soay.

Xanthorhoe munitata Hb.—Very rare, Storab Burn, Raasay, and Kinloch Glen, Rhum.

X. ferrugata Cl.—Sparingly between Inverarish and Osgaig, Raasay, Soay, and on Mullach Mor, Rhum.

X. designata Hufn.—A few captured on Raasay, S. Rona, Soay, Rhum and Canna.

X. montanata Schf.—Never really plentiful; netted on Raasay, S. Rona, Rhum, Canna and Muck.

X. fluctuata L.—Occasionally taken on Raasay and Rhum; also on Canna.

Orthonama lignata Hb.—Rare on S. Rona and Raasay; also on Canna.

Ortholitha chenopodiata L.—Local and uncommon, Point Eyre, Raasay, S. Rona, Soay, Kilmory Glen, Rhum, Eigg and Canna.

Colostygia viridaria Knoch.—Very common generally even on Pabbay.

C. olivata Schf.—Rare on S. Rona and Scalpay; locally very plentiful on Raasay, as in the little gorge along the stream leading to the reservoir; also taken on Pabbay, Soay and Eigg.

C. salicata Hb.—Rare in central Raasay near Brae.

C. multistrigaria Haw.—At sallows on Rhum, as larvae on Scalpay; also caught on Eigg, Rhum and Canna.

C. didymata L.—Very common everywhere; larvae found on *Saxifraga nivalis*, Fionchra, Rhum.

Earophila badiata Schf.—Larvae on roses of the *R. Sherardi* group on S. Rona and Raasay; on *R. spinosissima* on Rhum; also on Canna.

Anticlea derivata Schf.—With the preceding but much scarcer; also on Canna.

Mesoleuca albicillata L.—Larvae on bramble and raspberry, Kinloch, Rhum; and on Canna.

Entephria caesiata Schf.—Unexpectedly rare in these isles; Barkeval, Rhum, moors on Raasay and Soay.

E. flavicinctata Hb.—Very plentiful on Fionchra, Rhum; attached to *Saxifraga hypnoides.*

Perizoma blandiata Schf.—Rare on moors, Raasay, near the Long Loch, Rhum, and on Soay.

**P. affinitata* Stph.—Recorded from Canna.

P. alchemillata L.—Larvae common *Galeopsis,* Point of Eyre, Raasay, Rhum and Canna.

P. flavofasciata Thunb.—Larvae in seed pods of *Melandrium rubrum* on Eigg and Canna.

P. bifasciata Haw.—Rare on Soay and amongst Red Bartsia, Fearns, Raasay.

P. albulata Schf.—Abundant everywhere amongst *Rhinanthus.*

Euphyia bilineata L.—Common everywhere, with vars. *infuscata* Gmpbg. and *atlantica* Stgr.; a splendid greyish form is to be found near Harris, Rhum

Lyncometra ocellata L.—Not common near Rudha na Leac and Holoman, Raasay, and on S. Rona, Soay, Rhum and Canna.

Lampropteryx suffumata Schf.—Taken twice near Kinloch and Rudha na Roinne, Rhum.

Electrophaes corylata Thunb.—Occurs on the bigger islands with Longay and Pabbay.

Pelurga comitata L.—Near Clachan on Raasay.

Lygris testata L.—Common generally on the moors, etc., and in facies varying toward var. *fuscata* Meves and *insulicola* Stgr., feeds on hazel in the little copse along Kinloch Glen, Rhum.

L. populata L.—Much rarer than the preceding on Raasay, Scalpay, Soay, Rhum and Canna.

L. pyraliata Schf.—Rare on Raasay and Eigg.

Cidaria fulvata Forst.—Common amongst various wild roses on Raasay, S. Rona, Rhum and Canna.

Plemyria bicolorata Hufn.—Common amongst alder on Raasay and Scalpay, but rare on Rhum and Canna.

Chloroclysta siterata Hufn.—Rare on S. Rona and Raasay; also reported from Canna.

C. miata L.—Quite common on all the isles; larvae feed on birch and Sallow.

Dysstroma truncata Hufn.—Abundant even on Fladday and Longay; very variable.

D. concinnata Steph.—Forms referable to this species may be found on all the isles.

D. citrata L.—Abundant at rest on rock faces everywhere in August; is also very variable.

Thera obeliscata Hb.—Amongst Scots Pine on Raasay, S. Rona, Scalpay, Rhum, Eigg and Canna.

T. variata Schf.—Distinctly rarer than the preceding in spruce woods on Raasay, Rhum and Canna.

T. firmata Hb.—Sparingly along the upper road leading from Inverarish to Brochel, Raasay.

T. juniperata L.—Scattered on Rhum and Soay; the absence of this species on Raasay seems very remarkable.

T. cognata Thunb.—Attached to juniper on Rhum and Canna and not rare.

Hydriomena furcata Thunb.—Not really plentiful on Raasay; vars. *sordidata* Fab. and *obliterata* Prout may be found at Balachuirn and the var. *fuscoundulata* Don. attached to bilberry, on the hill behind the Church; also on Rhum, Eigg, Canna and Muck.

H. caerulata Frey.—Not rare amongst alder on Raasay, Pabbay, Rhum, Eigg and Canna.

H. ruberata Frey.—Common as larvae on *Salix aurita* on Raasay, Scalpay, S. Rona and Longay; less so on Rhum and apparently decadent there.

Anaitis plagiata L.—In small numbers wherever *Hypericum pulchrum* grows on Raasay, S. Rona, Soay, Rhum and Canna.

Carsia paludata Thunb.—Apparently common on South Rona and around Loch Doire an Lochain on Soay; much rarer in N. Raasay.

Epirrhoe alternata Müll.—Fairly common in open birch woods on Raasay and on machair land near Harris and Kilmory on Rhum; also on Canna.

E. tristata L.—Rather rare, but with var. *cognata* Harrison on Raasay.

**E. galiata* Schf.—Reported from Canna.

Eulype subhastata Nolck.—Common as larva in spun leaves of *Myrica Gale* on Raasay, S. Rona, Pabbay, Soay and Eigg.

Eupithecia distinctaria H.-S.—Larva found on thyme near Brochel, Raasay, and on the north side of the Kilmory Burn, Rhum.

E. tenuiata Hb.—Imagines at ragwort, and tapped from sallow trunks, near Inverarish, Raasay; larvae abundant in sallow catkins, Kinloch, Rhum.

E. pulchellata Steph.—Var. *hebudium* as larvae in foxglove flowers on Raasay, S. Rona, Scalpay, Soay, Rhum and Canna.

E. exiguata Hb.—Only taken in Raasay House woods.

E. venosata Fab.—Near Brochel, Screapadal and Hallaig, Raasay, Soay and Canna.

E. centaureata Schf.—Larvae on ragwort flowers near Suishnish, Raasay, Soay and Rhum.

E. intricata Zett.—The ssp. *helveticata* Bdv. occurs on juniper on Scalpay, S. Rona and on the mountains on Rhum, but not on Raasay.

E. satyrata Hb.—Fairly common, Raasay, Soay, Rhum, Eigg and Canna.

E. absinthiata Cl.—Suishnish and Inverarish, Raasay, Soay, Kinloch, Rhum and Canna.

E. goosensiata Mab.—On heather, Raasay, Longay, Soay, Eigg, Rhum and Canna.

E. assimilata Dbld.—Attached to hop, Kinloch, Rhum.

E. vulgata Haw.—Along the Arish Burn, Raasay, Rudha na Roinne, Rhum and Canna.

E. castigata H.—Common on moors, etc., generally.

E. indigata Hb.—Odd examples amongst conifers on Rhum.

E. nanata Hb.—Abundant on heather everywhere.

E. fraxinata Crewe—On ash on Rhum and Canna.

E. sobrinata Hb.—On juniper, but only on the big cliff near Samh nan Insir, Rhum.

E. lariciata Frey.—A few amongst larch on Raasay, Rhum and Canna.

**Chloroclystis rectangulata* L.—Only on Canna.

**Gymnoscelis pumilata* Hb.—Also restricted to Canna.

Nothopteryx carpinata Bork.—Amongst birch on Raasay with var. *fasciata* Prout, on Soay, Eigg and Rhum. Imagines were captured on Rhum at sallow bloom.

Oporinia autumnata Bork.—Amongst birch and alder on Raasay and Rhum; pale forms with vars. *intermedia* Clark and *sandbergi* Lampa occur.

O. filigrammaria H.-S.—Not common on the Raasay and Rhum moors.

O. dilutata Schf.—In forms between the type and var. *pallida* on Raasay.

O. christyi Pr.—Larvae on wych elm, Raasay.

Operophtera brumata L.—Widespread in the woodlands on Raasay, Rhum, Eigg and Canna; also attached to isolated hazels on cliff ledges on Rhum, where the var. *myricaria* Cooke occurs.

O. fagata Scharf—Bred freely from Rhum larvae, when the var. *fasciata* Pet. was bred with a unicolorous purplish-brown form.

Venusia cambricaria Curt.—On Raasay amongst rowans along the burns, and on Rhum on the south side of Loch Scresort.

Abraxas grossulariata L.—Abundant on all the islands in sheltered places on moors feeding on *Calluna*, *Erica*, *Corylus*, *Salix*, *Sorbus*, etc.; the var. *dohrnii* was once found on Raasay.

Lomaspilis marginata L.—Common amongst sallows on Raasay, Scalpay, Rhum and Eigg.

Cabera pusaria L.—Fairly common everywhere in goods and copses.

C. exanthemata Scop.—Much less common than its congener, but still well distributed.

Ellopia fasciaria L.—Near the Church, Raasay, and in Kinloch Woods, Rhum.

Campaea margaritaria L.—Not rare on Raasay, S. Rona, Rhum and Canna.

Selenia bilunaria Esp.—Larvae sparingly on birch, Inverarish, Brae, Brochel, Screapadal, Raasay, Kinloch, Rhum and Canna. The var. *infuscata* Strand. occurs as does the var. *insulicola* Harrison—a form with the wings strongly peppered with black above and heavily marked below.

S. lunaria Schf.—Not so common on Raasay, and rare on Rhum where the larvae feed on birch.

Gonodontis bidentata Cl.—Not very common on Raasay, S. Rona, Scalpay, Rhum and Eigg.

Colotois pennaria L.—Larvae beaten from birch and heather on Raasay, S. Rona, Poll nam Partan, Eigg, and Kinloch, Rhum; also reported from Canna, and Heiskeir.

Crocallis elinguaria L.—On Raasay, S. Rona, and near Kinloch, Rhum.

Opisthograptis luteolata L.—Common on Raasay on rowan and other trees, and ascending high up the burns, on birch on Soay and on hawthorn, laurel, etc., on Eigg, Rhum and Canna. It is quite possible that two species are involved here as one series winters as pupa and the other as larva; the latter group, emerging in August, produces larger more distinctly marked imagines.

Epione repandaria Hufn.—Captured in Eigg on *Salix aurita*.

Pseudopanthera macularia L.—Quite common amongst woodsage near the Post Office, Raasay.

Erannis aurantiaria Hb.—Larvae beaten from many trees at Kinloch, Rhum; also on Canna.

E. marginaria Fab.—Larvae beaten from various trees on Raasay, Eigg and Rhum. On Rhum, larvae occur on hazel growing on cliff ledges between Kilmory Glen and Glen Shellesder. Reported from Canna.

E. defoliaria Cl.—Larvae from oak, alder, hawthorn, etc., on Raasay, Rhum and Eigg; also on Canna.

Phigalia pedaria Fab.—Larvae from various trees; Raasay House woods, Arish Burn, Raasay, Kinloch woods, dry ravine under Askival, Rhum, Poll nam Partan, Eigg; also Canna.

Nyssia zonaria Schf.—Abundant on sand dunes, machair and occasionally moorland on Rhum near Harris and Kilmory, on Eigg around Laig Bay, on Canna west of the Sanday bridge and on Muck near the Meall. The larvae feed on *Lotus*, *Achillea*, *Salix*, *Iris*, *Calluna*, etc. Campbell now admits that Outer Island forms are smaller.

Biston betularia L.—Larvae beaten from various trees on Raasay, S. Rona, Soay, Eigg and Rhum. Most of the insects bred were typical, but one Raasay specimen had a black body, and another almost black wings.

Alcis repandata L.—Common on birch, heather, etc., on Raasay, Scalpay, S. Rona, Rhum, Eigg and Canna; most of the specimens taken would be assigned to var. *sodorensium* Weir.

A. rhomboidaria Schf.—Sparingly on Rhum near the squash rackets court and on Canna.

Ectropis bistortata Goeze—Larvae on birch along the Arish Burn, but on birch and *Salix Caprea* near Brae and Balachuirn,, Raasay. Imagines captured at Kinloch, Rhum, April 1946. The light-sensitive larvae are very different from English forms, for they are grey or variegated grey and quite smooth.

Gnophos obscurata Schf.—On the cliff along the Allt Brae, Raasay, Papadil and Glen Shellesder, Rhum; also on Canna.

G. myrtillata Thunb.—Amongst *Erica* on Raasay moors, also Canna.

Ematurga atomaria L.—Generally distributed on heather.

Bupalus piniaria L.—Rather common amongst Scots pine on Raasay, S. Rona and Scalpay, but much rarer in the pinewoods on Rhum.

Selidosema plumaria Schf.—Only in the suntrap near Papadil, Rhum, and on Canna.

Lithina chlorosata Schf.—Near the Waterfall, Kinloch Glen, Rhum, and Canna.

Dyscia fagaria Thunb.—Raasay, as larvae on Rhum in 1946, and Canna.

Zygaena filipendulae L.—Common in S.E. and Central Raasay and on the Torridonian Conglomerates on Scalpay; also plentiful in all suitable stations on Rhum, Eigg, Muck, Eilean nan Each and Canna.

Z. achilleae Gn.—Detected in 1935 on the southward slopes of Beinn na Leac in East Raasay in a mixed colony with *Z. filipendulae*. In 1951, Dr. J. K. Morton and I failed to find either of these two species on Raasay.

Z. purpuralis L.—In 1938 we found that this species was widely distributed on all the ecologically satisfactory areas on the igneous rocks on Rhum. It occurred from the Bloodstone Hill station to Papadil, and from sea level to over a thousand feet on Bloodstone. Later, we demonstrated that it was equally common locally on Eigg. There can be no doubt but that this species in the two islands is an Interglacial or Interstadial relict form, for it must have entered them in some period of temporary climatic amelioration during the Upper Pleistocene Glaciation. It should be emphasised that, should the species ever be detected in Canna, the fact cannot be utilized on biogeographical investigations as, most reprehensibly, Campbell has liberated females obtained from Rhum on the island.

Sphecia bembeciformis Hb.—Along the Allt near the Power House, Kinloch, Rhum, feeding on *Salix aurita* and *S. viminalis*.

Hepialus humuli L.—Near Osgaig, Raasay, and on the Castle grounds, Rhum, also on Canna.

H. sylvinus L.—Rare along the road near Brochel, Raasay, Kinloch, Rhum and Canna.

H. fusconebulosus De Geer—Occasionally on Raasay, S. Rona and Scalpay amongst bracken, on the loch side, Papadil, Rhum, and Canna.

H. lupulinus L.—Rare on S. Rona, Raasay and Rhum.

H. hectus L.—Not at all common on Raasay and S. Rona, pupae found near Kinloch, Rhum, and the imago on Eigg.

Fumea casta Pall.—Near the Cave, S. Rona, on the Lewisian Gneiss, N. Raasay, and along the Allt na h'Uamha, Rhum.

Current Notes

Turning over the books in the sixpenny box outside an 'antique' shop last year I came upon a volume I had never seen nor heard of before. It is a small octavo which had once been nicely bound in quarter calf gilt with grey paper sides. The title page reads:—*A Series of Essays introductory to the Study of Natural History*, and the date of publication was 1805. Just another of those paste-and-scissors compilations on natural history which issued so freely from the presses during that period, I thought—until I saw the author's name; for it was by no less a person than Dr. Fenwick Skrimshire, M.D., the friend of Adrian Haworth and his companion on that famous drive in the fens when Large Coppers flew across the road and capered about the herbage on either side of them. Skrimshire was President of the Natural History Society of Edinburgh and is one of the egregious omissions from the *Dict. Nat. Biog.*

Apparently it is a scarce book: it does not appear in the printed catalogues of the Zoological Society nor Royal Entomological Society, and in more than half a century's book-collecting I never heard of another copy. It is a two-volume work and was printed by I. Gold of Shoe Lane, Fleet Street, for J. Johnson of St. Paul's Churchyard; both volumes are bound together in my copy—in which, by the way, a former owner has written inside the front cover "Ld.H.'s Room". On the title page is faintly pencilled "Ly.D.". Both Lady Dalkeith and Lady Douglas appear in the List of subscribers as well as the Countess of Home; so if any of our readers are interested in peerage history perhaps they can puzzle out the original ownership of my volume and tell me who "Lord H." was and where his room was situated.

Skrimshire relates an interesting story about the gannet which sounds rather like a traveller's tale but, like some travellers' tales, may be true—or partly true. I have not heard it before and it seems to have been unknown to the omniscient Parson F. O. Morris. Here it is:—"I have heard of a peculiar mode of taking this bird, which is sometimes practised at the Bass. The fowler chooses the night time for his stratagem, when whole flocks are at rest together; but as they always have their sentinels in advance, it requires great care and caution to approach them. For this purpose he crawls upon his hands and knees with the least possible noise, till he has got near enough to seize one of them, and then as quickly as possible he catches another by the legs, and holding one in each hand, sets them a fighting with each other. If he is able to effect this, his work immediately begins; for the whole flock, instantly upon hearing the affray, advance and join in the combat; and siding with one or other party till the whole are engaged, they are inattentive to every thing else that is going on. The fowler now with less caution crawls about, and destroys as many as he can. In this way he may sometimes catch two or three dozen before they take to flight."

As one would expect from a friend of Haworth, Dr. Skrimshire was well up to date in the Entomology of his day. "The general opinion," he writes, "that insects act a less important purpose than any other tribe in the economy of Nature, and that the study of their natural history would conduce but little to the benefit of mankind, I conceive to arise merely from our ignorance on the subject. I have already said that entomology is in its infancy; if, however, we can now bring a few instances of the importance and utility of the study, we may hope that a further acquaintance with it will discover further benefits; and for this reason I particularly recommend it as an important pursuit." A page or two further on he tells us that his friend Haworth has in his possession above 1,100 species of British lepidoptera, "a number five or six times greater than any entomologist possessed twenty years ago". Altogether an excellent little book, a worthy forerunner of Kirby & Spence's classic work.

P. B. M. A.

Notes and Observations

The Mazarine Blue.—My attention has been drawn to the note at page 100 of Vol. 67 of *The Entomologist's Record* in re *Cyaniris semiargus* Rott. Quite apart from exceptional instances of migration, the 1906 captures were not the last of the Mazarine Blue in Britain. There is for example the Mortimer, Berks., specimen of 1908, recorded at page 159 of *The Entomologist*, Vol. 51; and with which I was quite well acquainted since at about the time of this note I was the immediate neighbour of the captor, Mr. Fonseca, in Bristol.

And in the Bristol area itself I have no doubt that a colony of the species, the exact location of which was never discovered, survived at least until 1921; the season which, speaking of the Lepidoptera generally, caused not only much local movement but the permanent disruption of some colonies. Apart from traditions and rumours of occurrence, two definite specimens in the Bristol area came within my purview.

One was taken in 1916 on the Gloucestershire side: I was familiar with the specimen and the place of actual capture. Finally one was taken by a school-fellow, and seen by me fresh-killed in his tin, in 1921: but the location of the capture, though it must have been close to the city, could not afterwards be determined.—I. R. P. HESLOP, Belfield, Poplar Road, Burnham-on-Sea, Somerset. 22.iv.55.

EARLY APPEARANCE OF SOME COMMON MOTHS.—In this rather backward year it may be of interest to mention the first date of appearance of five common moths in my moth trap in this garden as they all seem to be rather on the early side:—*Cucullia verbasci* Linn., 13th April; *Pheosia tremula* Clerck, 22nd April; *Plusia gamma* Linn., 23rd April; *Hadena bicruris* Hufn., 24th April; *Diataraxia oleracea* Linn., 27th April.—C. S. H. BLATHWAYT, 27 South Road, Weston-super-Mare. 18.v.55.

EARLY APPEARANCE OF VANESSA ATALANTA LINN.—As the incident described below appears to be unusually early for the butterfly concerned I am forwarding the details in case you decide to insert it in the *Entomologist's Record*.

Whilst walking along a sunny ride in a wood near Fareham, Hampshire, on 30th April this year, I sighted two *Vanessa atalanta*. They were only about fifty yards apart—one was very fresh in appearance, the other rather faded. As to whether these two insects were immigrants or hibernated examples it is impossible to determine.—B. S. BURNS, 1 Jamaica Villas, Stoke Road, Gosport, Hants. 1.v.55.

—— —— The Red Admiral which I saw here on 5th April may or may not have been a migrant. Elsewhere in Devon *V. atalanta* has been seen, and from Plymouth we hear of *M. stellatarum* L. observed in early April.—FRANK H. LEES, The Gables, Maidencombe, Torquay, Devon. 25.iv.55.

NEWS FROM TORQUAY.—At the moment I'm not in much shape even for moth-trap collecting. Early in the month (April) I felt more like my old self again and got busy in garden and with my trap, etc., started in fine style. We had a few good nights before the wind got back to east again and I recorded eight *Nomophila noctuella* Schiff.—as many I think as I recorded in the whole of 1954—and one *Pyrausta martialis* Guen. (*ferrugalis* Hüb.).—FRANK H. LEES (*in lit.*).

LITHOCOLLETIS EMBERIZAEPENNELLA BOUCHÉ IN BERKSHIRE.—I should like to record that on 1st November 1954 I found several mines on leaves of snowberry (*Symphoricarpus racemosus* Michx.) from which I have bred 10 specimens of *Lithocolletis emberizaepennella* Bouché. The larvae were pale green, head pale brown, mine on underside of leaf, whitish, generally parallel to midrib on large leaves, but outwardly from midrib to edge of leaf on small ones. Generally a patch of green is left in the mines when the larvae have ceased feeding.—H. L. DOLTON, 36 Chester Street, Reading, Berks. 30.iv.55.

Catocala fraxini Linn. in Berkshire.—I would like to report the following observation made on the 21st Sept. 1954, in case the occurrence may be new to the area. While entering the gate of a private house at Woodlands Park, near Maidenhead, a large moth flew up in front of me, crossed the road and settled on the wall of a house opposite. I could not resist following to try to identify it. This I was able to do very easily as it was settled at eye level, and having nothing to try to box the moth in, I parted its wings with the book I was carrying. This caused it to fly off, but not before I had exposed its beautiful hindwings, and noted that it was a ♂ in fresh condition.—G. H. B. Oliver, Corydon, Amersham Road, Hazlemere, High Wycombe, Bucks.

A New Role for the Larvae of Acherontia atropos Linn.—While looking through some old correspondence recently, I found a letter, written in the autumn of 1941, from the late J. L. Moore, a Suffolk entomologist, which contains a passage that I think is worthy of record.

"I had an Atropos larva brought me under rather amusing circumstances. A Special who was impressed with the order to report anything he saw unusual, took an Atropos larva under arrest to the police station, firmly believing it to be some new form of enemy frightfulness! Most of the constables and Specials declared it to be a *Colorado beetle*, but one of them fortunately remembered that I was a bug lunatic and rescued the poor beast. However, its arrest had been too much for it, as it was comatose and had been wanting to burrow. It did so when I had charge of it, but hadn't enough energy to excavate its pupal chamber, and so died and was buried, the first larva I should say that was ever arrested."

I think this incident deserves a place beside the delightful story of the privet-hawk larva quoted in the April *Record* (pp. 128-129).—H. Symes, 52 Lowther Road, Bournemouth. 16.iv.55.

Abundance of the Larvae of Euphydryas aurinia Rott.—Mr. S. G. Castle Russell's account of the phenomenal abundance of the larvae of *E. aurinia* (*Ent. Rec.*, **67**: 111) reminded me that I was told by the late G. B. Coney, of Batcombe, Somerset, that he had once seen a field in Dorset positively black with *aurinia* larvae, in the middle of April. Then the cuckoos arrived, and within a few days there was scarcely a larva to be seen.

I have no doubt that I know the identity of the hill on the Wiltshire Downs where Mr. Castle Russell found the larvae in such phenomenal numbers more than fifty years ago. As recently as 1937, the larvae were abundant in this locality. On 16th April that year, I visited the spot, and in little more than an hour collected 115 larvae on the slopes of the hill, and had by no means covered all the ground. I kept two dozen of these larvae and fed them on a mixed diet of honeysuckle (see *Ent. Rec.*, **67**: 129) and snowberry (*Symphoricarpus racemosus* Michx.). They were very partial to the succulent young shoots of the latter. Two of the resulting butterflies are unusually dark, finely marked specimens, but this must not be attributed to their diet.—H. Symes, 52 Lowther Road, Bournemouth. 16.iv.55.

Birds and Moths.—With reference to Dr. Ford's account of an observation of birds attacking *Biston betularia* L. settled on tree trunks, quoted in the review of his book *Moths* (*Ent. Rec.*, **67**: 103-104), here is a note of mine published in the *Entomologist's Monthly Magazine*, **87**: 102:—"An adult fiscal was seen to fly against the trunk of a tree, from which a specimen of the large Noctuid, *Cyclogramma latona* Cr., immediately flew." The fiscal is a small black and white Shrike (*Lanius collaris*) which is common throughout Kenya and which I once saw catch a flying Saturniid in its claws. (How the *E.M.M.* printed *Cyclogramma* when the genus is *Cyligramma* I don't know, but lower down in the same note they have printed *Nudaurelia* as *Nadaurelia*).

It is several years ago since the incident occurred, but my recollection is that the bird almost threw itself against the tree. I also think that Robins and Hedge Sparrows could eat considerably more than two *betularia* at a sitting. My mother used to keep a number of birds and it was surprising the number of grasshoppers that even the smaller ones could manage.—D. G. SEVASTOPULO, Kampala, Uganda. 17.iv.55.

CANNIBALISM IN LARVAE.—With reference to the recent correspondence in *The Entomologist's Record* on cannibalism in larvae, the case of *Heliothis armigera* Hb., may be of interest. Although apparently rare in Britain, this species is far too common in S. Africa where its larva, known as the American Cotton Bollworm, causes severe damage to a wide variety of crops, as well as to garden flowers. While working on cotton insects in the Eastern Transvaal many years ago, the insect was my particular problem, and I soon found that it was fatal to place more than one larva in a pillbox, vial or cage, as well as to include larvae of other species. Cases of cannibalism in the field were also noted. Overcrowding seems to induce the habit.

Quaintance and Brues (1905) refer to cannibalism in their exhaustive account of this bollworm as follows:—"The difference in mortality on corn and cotton is mainly due to the cannibalistic habits of the larvae themselves. When young, this habit does not manifest itself very strongly unless the bollworms are pressed for food, but after they are half-grown or larger they become extremely vicious and attack one another on the slightest provocation. If two larvae are feeding in one ear of corn and their paths accidentally cross, they become irritated at once and snap at each other with the mandibles. Usually the larger one is victor and makes a meal of the smaller. If, as is sometimes the case, both are of approximately the same size, it is not unusual for both to be so injured as to die. Even two larvae peaceably crawling about will almost always fight if they come together unexpectedly. They do not evince any desire to hunt out their fellows, however, and it appears to be merely chance which brings them into contact. Observers have often been inclined to think that cannibalism was induced by external annoyances caused by ants or other insects, but this does not seem probable It seems to be simply an inherent instinct. The bollworms appear to relish the bodies of their unfortunate fellows, but soon sicken and die if compelled to subsist for a long time on this sort of food. Several were experimented on in the laboratory by feeding them on crushed caterpillars, but none so fed matured successfully.

"This is one of the most valuable factors in reducing the injury to corn, for if all the larvae in an ear should feed peaceably together, as is usual among many other species of caterpillars, they would no doubt often consume it entirely. This would mean, in certain regions, an almost complete destruction of the corn crop. During August, 1904, an actual count was made of a number of corn ears to ascertain the number of larvae present. In 10 ears there were in all 168 larvae, each containing from 8 to 38 in all stages of development, although mostly quite small. This is an average of nearly 17 to an ear, or over eight times the number which could eventually mature.

"Cannibalism is not so important in lessening injury to cotton, since the larvae are more isolated and do not meet one another so often. During seasons of bad bollworm injury, however, it may be an appreciable factor in their reduction.

"Aside from eating larvae and pupae of its own species, the larger bollworms will often feed extensively upon the larvae and pupae of the cotton caterpillar late in the fall when the latter is abundant, as well as upon other species".—J. SNEYD TAYLOR, Port Elizabeth, South Africa. 23.v.55.

REFERENCES.

Quaintance, A. L., & Brues, C. T. 1905. The Cotton Bollworm. *U.S. Dept. Agric. Bur. Ent. Bull.* No. 50: 79-80.

APATURA IRIS LINN. IN THE FOREST OF DEAN.—In a pleasant book which we read recently—*Severn Tide*, by Brian Waters, 1955—we came across the following:—"Contemporaries [in the Forest of Dean] of the last of the red deer were the kite, the buzzard, and the purple emperor butterfly, all of which have since become exterminated through the stupidity and cupidity of man. The Victorian egg and bird collector did incalculable harm to the rarer species of our birds and butterflies. He was often a wealthy man with the mind of a schoolboy. He would pay the equivalent of a week's wage to the farm labourer who brought him a clutch of eggs of a rare bird. If he was a butterfly collector he would visit the locality of a rare insect and would catch as many as would fill the entire length of a drawer in his butterfly cabinet. Many of these rare insects were caught before they had a chance of breeding and the adult butterfly collector is alone responsible for the extinction of the purple emperor in the Forest of Dean".

But *is* the purple emperor extinct in the Forest of Dean? We seem to have heard of it there in fairly recent years; and as for buzzards—!

"RADIATION" BUTTERFLIES.—A correspondent has sent us a cutting from the London *Evening Standard* of 13th May 1955 which is headed "London may see radiation butterflies". It is as follows:—"Butterflies which have received radiation 'treatment' have been seen in the Braintree-Colchester and Thames Estuary areas, and are expected to reach London within the next few weeks. But they are 'quite harmless', says Mr. Edward Elmhirst, senior surgical registrar at East Suffolk Hospital, who is using them to find a possible link between the effect of radiation on insects and human beings. Mr. Elmhirst has released 130 butterflies after placing them, while in caterpillar and chrysalis form, under X-rays—the same rays released after atom and hydrogen bomb blasts. He is trying to breed from 30 other treated butterflies.

" 'They are coy about breeding in captivity and my results so far are practically neglible,' Mr. Elmhirst said. 'However, I have noticed some peculiar results from breeding with radiation-treated butterflies.

Some of the progeny have changed physical characteristics, such as losing one antenna, gaining or losing a leg, or else becoming sterile.'

"Mr. Elmhirst said that the butterflies flying around the country did not have a trace of radiation in their bodies. The only reaction would be in their genes—or the characteristics which they should pass on to their offspring."

A Note on the Winter Breeding Activities of Theobaldia annulata Schrank (Diptera, Culicidae).—A female was taken indoors at Flatford Mill, Suffolk, on 25th August 1954. At fairly regular intervals she then laid four egg rafts, the last being on 31st December 1954. Each batch of eggs followed a human blood meal. Subsequently the insect could not be induced to take further blood meals and died, without any more eggs being laid, on 2nd February 1955. During captivity the insect was kept in an unheated room, water and fruit juice being provided in addition to blood meals. Total number of eggs laid was about 350, all viable.—E. R. Nye, St. Bartholomew's Hospital Medical School, London.

Errata.—Page 152, line 13: for *vellerus* read *vellereus*.
Page 153, line 16: for "fresh O" read "fresh ♂".
Page 153, line 41: for Schb. read Schiff.

Fifty Years Ago

(From *The Entomologist's Record* of 1905.)

Where to take Ptinus latro Fab.—Last may I took a *Ptinus* in the bath in my bathroom at 58 Kensington Mansions, which at the time I took to be ♀ *P. fur*, but on comparing it with that species I found the shape to be different and the antennae shorter, besides the fact that it has no white markings. It agrees exactly with a foreign specimen of *P. latro* possessed by Mr. Bates. Of this insect Fowler writes: "In old houses, especially in store rooms; two examples in Mr. Waterhouse's collection, one from old collection with no history, and the other labelled 'Scotland, Turner'." These appear to be the only British records! I may say that *Niptus hololeucus* occurs regularly every year in my flat, and I often find specimens in the bath. They no doubt come from the woodwork of the bath.—Horace Donisthorpe.

Melitaea aurinia in Gloucestershire.—This local butterfly has been known to occur for many years past in certain very limited areas in Gloucestershire, chiefly in low-lying damp meadows and marshes in the vales, and, as a rule, these specimens are larger and darker coloured than those found in some other British localities, as Sussex, Cumberland, etc. . . . On June 15th last, in company with Mr. W. B. Davis of Stroud, we visited a ridge of the Cotteswolds 800 ft. high, on which I had not been for 30 years, and to my friend it was new ground. While resting, discussing our sandwiches and the glorious view of hill and dale towards the Severn, we noticed among the varied insects near us, a dull butterfly of sluggish flight, and somewhat different habit from *Brenthis euphrosyne* usually met with in such spots. On netting it great was our surprise to find we had captured *M. aurinia* at such an elevation. Soon we noticed other specimens, and during the next half hour could have taken dozens had we so wished. It was the first occasion I had seen it on the summit of a Cotteswold hill, but my friend had had a similar experience several years ago and on a similar ridge some miles distant. It is interesting to observe that these hill-top specimens are smaller and of a lighter colour than those usually found in the vales. One is curious to know whether this is a distinct race.—C. J. WATKINS, Gloucester.

EMBARRAS DE RICHESSE.—In some places the wealth of insect life was extraordinary. Near Vevey, on July 14th, I took, with a single sweep of my net, two *Polyommatus damon*, two *Polyommatus corydon*, one *Thecla ilicis*, one *Dryas paphia*, one *S. circe*, and four *Epinephile jurtina*, making eleven butterflies, including 6 different species.—J. N. KEYNES, Cambridge.

L'EMBARRAS DE PAUVRETÉ.—The impression left on my mind was that butterflies, in spite of the glorious summer of 1904, were undoubtedly scarcer than they were when I was a boy, and that this was not due, in the localities I have in my mind, to either increased cultivation or over-collecting. I believe my old schoolfellow, Edward Meyrick, is right in attributing it to the extraordinary abundance of starlings. I was particularly impressed with the manner in which these birds carefully and systematically quartered the ground in search of insects; I feel sure that, whatever good the Wild Birds' Protection Act is doing towards the preservation of our avifauna, it is playing the mischief with many of our butterflies.—Lt.-Col. N. MANDERS.

UNCORKING OINOPHILA V-FLAVA HAW.—Early last summer I received from Mr. V. Eric Shaw a wine cork, containing two larvae of *Oinophila v.flavum*. On commencing to pull the cork to pieces I saw various portions of the larvae, but it was a very difficult matter to get them out of the cork. They had formed long, slender, tortuous galleries in the less sound portion (the upper) of the cork, and they moved along these galleries very rapidly. The only way to get the larvae out was to break up the cork piecemeal. Even in doing this very carefully I fatally injured one of the larvae; the other was put in a tin box with small pieces of cork, and fed up well. . . . The larva pupated without forming any special cocoon, and the moth appeared in a few weeks.—A. SICH, Chiswick.

PUPAL HABIT OF MACROTHYLACIA RUBI L.—I am much interested in watching a pupa of *Macrothylacia rubi*. The larva spun up in a chip box, and made a slight silken cocoon, the top of which was left open for emergence. Every morning, the pupa wriggles its way to this opening, and all day it remains with its head slightly projected from the cocoon, but, at night, when the temperature falls, the pupa drops back into the bottom of the cocoon. I mention this as I have seen no notice of this curious habit elsewhere.—PERCY C. REID, Kelvedon, Essex

---

As we go to press the sad news reaches us of the passing of a dear friend and loyal supporter of the *Record*—SYDNEY GEORGE CASTLE RUSSELL. He died at his home in Cranleigh, Surrey, on 28th May, at the age of 89. Much loved and deeply lamented.

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EXCHANGES AND WANTS

Wanted.—Scarabaeidae from all parts of the world. Also literature dealing with this subfamily.—*589321 Sgt. Rogers, Sergeants' Mess, R.A.F., Yatesbury, Calne, Wiltshire.*

Wanted.—Mahogany cabinet, about 20 drawers; Gurney or Brady preferred.—*Clifford Craufurd, Denny, Galloway Road, Bishop's Stortford, Herts.*

Wanted.—Larvae of *Agrotis segetum*, *Euxoa nigricans* and *Triphaena pronuba* for experimental work. Please report to *D. K. McE. Kevan, School of Agriculture, Sutton Bonington, Loughborough, Leics.*

Wanted.—Living female pupae of *Saturnia pavonia* or any other large female pupa (*Laothoe populi*, *Smerinthus ocellata*, etc.) for work on assembling scents. Cash or exchange.—*Dr. H. B. D. Kettlewell, Genetics Laboratory, Department of Zoology, University Museum, Oxford.*

Wanted.—Distribution records in Great Britain and Ireland (especially Ireland) of *Erebia epiphron* Knoch (Small Mountain Ringlet). Localities will be kept secret if so desired.—*Dr. J. F. D. Frazer, Stone House, Boxley, Maidstone, Kent.*

Wanted.—Old insect sale catalogues pre 1952. Also early Bulletins of the Amateur Entomologist's Society. Exchange for other books or cash.—*L. Christie, 137 Gleneldon Road, Streatham, London, S.W.16.*

Wanted.—Lepidoptera of North West Surrey. I am preparing an account of the distribution of Macro-lepidoptera and Pyralidina in Surrey, north and west of the line Weybridge, Woking, Worplesdon, Normandy, Ash Vale (inclusive). Records with full data would be welcome, even of common species: Pyrales and Plume Moths particularly needed.—*R. F. Bretherton, Ottershaw Cottage, Ottershaw, Chertsey, Surrey.*

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Sexual Differences in the Compound Eyes of Butterflies

By F. V. L. Jarvis, B.Sc., F.R.E.S.

For several years I have reared species of *Colias* from different parts of the world with the object of observing growth at all stages on a comparative basis. One of the species brought through this last winter is the specialized alpine *C. phicomone* (Esp.) in which there are six larval instars as against the five instars of *C. croceus* (Fourcroy); *C. electo* (L.); *C. australis* (Verity); *C. pseudohecate* (Brgr.). Although the adult larva has approximately the same dimensions as the larvae of *C. australis* and *C. hyale* (L.) it was observed that the width of the head in the final instar was considerably greater than in the two latter species.

The following measurements were averaged from 12 *C. australis* and 3 *C. phicomone* larvae. Variations from the mean did not exceed 5%.

	Length.	*Width.*	*Horizontal Diameter of Head.*
C. australis	30·0 mm.	6·0 mm.	2·15 mm.
C. phicomone	30·5 mm.	5·8 mm.	2·80 mm.

It was found that similar dimensions were carried into the pupal stage.

Pupae.	*Length.*	*Depth from dorsum to centre of costal curve.*	*Ventral width across eyes.*	*Dorsal width of thorax.*
C. australis	22 mm.	7·0 mm.	2·7 mm.	4·9 mm.
C. phicomone	20 mm.	6·5 mm.	3·7 mm.	6·0 mm.

As the head and thorax of *phicomone* are obviously larger than in *australis* a series of measurements of imagines of approximately equal wing span and body length was made to find out if the imaginal head of *phicomone* was the larger. However, this did not prove to be the case but a difference between the sexes was discovered as shown in the following table. 27 *australis* and 5 *phicomone* were measured and again individual differences did not exceed 5%.

Imagines.	*Length of body (minus head).*	*Width of thorax at base of fore-wing.*	*Horizontal width across head and eyes.*
C. australis ♂	15 mm.	5·0 mm.	4·0 mm.
C. australis ♀	15 mm.	4·0 mm.	3·1 mm.
C. phicomone ♂	16 mm.	3·4 mm.	3·8 mm.
C. phicomone ♀	17·5 mm.	4·6 mm.	3·0 mm.

In recording these measurements it became obvious that the compound eyes were larger in the males. The form of the eye is approximately two-thirds of the hemisphere of a spheroid with the longer diameter at right angles to the usual line of flight. The eyes converge at the front of the head thereby ensuring a high concentration of facet lenses to cover the forward field of vision.

To examine further this sexual distinction the subsequent series of measurements was obtained from 27 *C. australis*, 22 *C. hyale* and over 200 *C. croceus*, specimens being selected of nearly equal size and about equally divided between the sexes.

	Long axis of eye.	*Horizontal width across head and eyes.*
C. australis ♂	2·7 mm.	3·9 mm.
C. australis ♀	2·0 mm.	3·1 mm.
C. hyale ♂	2·6 mm.	3·7 mm.
C. hyale ♀	2·0 mm.	3·1 mm.
C. croceus ♂	2·4 mm.	4·0 mm.
C. croceus ♀	1·9 mm.	3·6 mm.

The figures show that male eyes are obviously larger in each species. As a large number of *C. croceus* were available a detailed examination of the eyes was undertaken to discover if the number of facets varied between the sexes. After checking that the shape and size of the eyes were constant between specimens of the same sex, a male and female of equal wing span were measured with the following results:—

	Length of long axis of eye.	*Length of short axis of eye.*	**Area of eye.*
C. croceus ♂	2·15 mm.	1·62 mm.	3·6 sq. mm.
C. croceus ♀	1·75 mm.	1·25 mm.	2·3 sq. mm.

*Calculated as one-third of the area of a spheroid with two diameters at right angles (long and short axes).

The hexagonal facets were found to have the same diameter in each sex, 0·022 mm., so that the area of each facet was 0·00039 sq. mm. Dividing area of eye by area of one facet gives 9,030 facets in the male and 5,890 in the female.

In *C. australis* and *C. hyale* the individual facets were somewhat larger, having an area in each sex of 0·00047 sq. mm., *i.e.* about 20% greater than in *C. croceus*, but the eye is also larger by approximately the same ratio so that the total number of facets is again about 9,000 in the male and 6,000 in the female.

These figures indicate that the larger male eyes are evidently 50% more optically efficient than those of the female. The field of vision is built up from the co-ordination of all the small-angled images projected into the rhabdome rods from each facet lens. Surrounding each rhabdome are the elongated retinal cells which presumably compensate for distance from the object viewed as the lenses are of fixed curvature. It is probable that the small overlaps between the images formed by adjacent lenses give stereoscopic vision.

Smaller series of the following Coliads were examined. These too gave a similar ratio between the sexes:—*C. pseudohecate* (Brgr.), East Africa; *C. erate* (Esp.), S.E. Asia; *C. meadi* (Edw.), N. America; *C. romanovi* (Gr. Grsh.), Turkestan; *C. fieldii* (Mén.), N. India, Tibet, W. China; *C. palaeno* ssp. *sugitanii* (Esaki), Japan.

With the species already described it seems likely that the larger male eye must be typical of the genus *Colias* throughout its global distribution.

An examination was then made of series of British butterflies to find out if other genera showed this difference. With the exception of

Apatura iris (L.) of which only nine specimens were available (5 ♂♂, 4 ♀♀), considerable numbers of each sex were measured. The results fell into three main groups but it is probable that detailed examination of each species would amend this slightly.

GROUP I.

Male eye appreciably larger.

The genus *Colias*; *Apatura iris*; *Argynnis aglaia*; *Argynnis cydippe.*

GROUP II.

Male eyes slightly larger.

Hesperiidae; *P. machaon*; *G. rhamni*; *L. sinapis*; *A. paphia*; *B. euphrosyne*; *B. selene*; *M. cinxia*; *M. athalia*; *E. aurinia.*

GROUP III.

No appreciable difference between the eyes of the sexes.

P. brassicae; *P. rapae*; *P. napi*; *L. camilla*; Vanessidae; Satyridae; Lycaenidae.

Repetition of figures would take up too much space but the following measurements are of interest:—

	Long axis of eye.	*Horizontal width across head and eyes.*
A. iris ♂	2·9 mm.	4·8 mm.
A. iris ♀	2·4 mm.	4·3 mm.
A. cydippe ♂	3·0 mm.	5·1 mm.
A. cydippe ♀	2·3 mm.	4·3 mm.

The diameter of the facets in these two species is the same as in *C. croceus* (0·022 sq. mm.). So that again there are about 50% more facets in the male eye and a higher total of facets than in *C. croceus.*

By way of contrast it was found that in *Cupido minimus* (Fues.) (Lycaenidae) the eyes of both sexes were of approximately the same area which was roughly a quarter of that of the female *croceus.* But the area of each facet was reduced to 0·0001 sq. mm. which again gave about 6,000 facets in the eye.

Analysis of these results produces one obvious conclusion, namely that in those species where the male is more active than the female the male eyes are the larger. The Coliads, *A. iris*, *A. aglaia* and *A. cydippe* are well known for the greater activity and more purposeful flight of the males directed largely towards the search for the female. Selection during evolution has clearly favoured the best equipped males. One might expect some difference in such strong fliers as the Vanessids but in this group both sexes are equally active and the difference in the eyes is very slight. The same principle applies in Pieridae, Satyridae and Lycaenidae.

The eyes of two moths with active day-flying males (*Saturnia pavonia* (*carpini*) and *Lasiocampa quercus*) were compared between the sexes. No difference was found, but in these instances the males hunt the females by scent. Hence it seems a reasonable deduction that the larger male eyes of some species of butterflies are the essential factor in finding the female if she is inclined to be coy.

The eyes of a male *croceus* are remarkably efficient optical instruments. The angular rate of change of image in the retinal tubes of one of these butterflies moving at 20 m.p.h. six inches above a clover field is equivalent to the pattern change in the eyes of the pilot of an aircraft flying at 600 m.p.h. one hundred feet above a forest. The rate of nervous co-ordination for evasive action is of the same order in each instance. Anyone who has alarmed a Clouded Yellow knows its capabilities for avoiding the net.

Although butterflies are stated to be very short-sighted I am of the opinion that some species can appreciate the significance of the optical field up to a distance of 15 feet or more. Three observations I made on what appeared to be selective flight in *A. iris* rather supports this. A male descended on a dull day from a tall oak tree to inspect the radiator-cap of my car parked beneath; another male on a sunny day flew down to have a look at my spectacles and on the third occasion—again on a sunless day—a female sitting two feet above the ground on a hazel bush flitted swiftly away when I approached within ten feet. It opened its wings as soon as I lifted the net so I was sure it saw me at that distance.

Optically the facet lenses with their extensive retinal tubes should be able to focus distant objects, but the foreground features of herbage etc. must be the operative elements in their world. Probably they are not concerned with anything more than a few feet away.

I have a note made in 1949 which has an indirect bearing on this subject although it is more related to colour vision. In September of that year there were four beds of *Statice* planted on the front at Bexhill; two beds of the blue form and two of yellow. Butterflies are fond of this plant. To my sense of smell both colours had the same honey-like scent. At this period there was a large invasion of *Pyrameis cardui*, *Pieris brassicae* and *Pieris rapae* and somewhat fewer *Colias croceus*. *P. cardui* fed exclusively on blue *Statice*. At times there were twenty-five to thirty on these beds but none on the yellow. The Whites generally favoured blue but a fair number visited the yellow flowers. *C. croceus* divided their attentions equally between the colours. At dusk swarms of *Plusia gamma* came to all the plants irrespective of colour which by that time was nearly invisible. I have noticed that in clover fields *C. croceus* prefers to feed on the yellow Hawkweeds rather than on Purple Clover, but this may be due to a more attractive nectar. The evidence of the *Statice*, however, suggests that *croceus* has a partiality for yellow flowers; *i.e.* it is attracted by objects of its own colour. If the species recognizes the opposite sex by sight this might be expected.

A Note on *Odezia atrata* L.

By the Rev. Desmond Murray.

The 'Chimney Sweeper' moth is appropriately named since it seems to be the only black moth on our list, apart from melanic forms. The so-called 'Black Mountain Moth', *Psodos coracina* Esp., is really a smoky-grey to brown in colour. Haworth's English name for *atrata* was 'The Looping Chimney Sweeper' to distinguish it from his 'Chimney Sweeper's Boy' (*Epichnopteryx pulla* Esp.), which is one of the *Psychidae*.

O. atrata when freshly emerged is jet black except for the apex of the forewing, which is white, and a fine white line at the base of the secondaries. After a few days in the sunshine (for it is a day-flying moth) the colour becomes distinctly brownish-black.

As the early stages do not seem to have been worked out or any figures of the larva given in Stokoe's recent book, *The Caterpillars of British Moths*, 1948, and although Buckler gives a poor figure of a small green larva which might be any green larva (and that was sixty years ago), no other figure or description of the early stages has since been made, to my knowledge (see Note in *Ent. Record*, IV, p. 43, 1893, a reference to the larva being first found by Buckler). The following account then should be of interest.

(1) The *Egg* is large for the size of the moth, and the curiously deep formed groove down the centre of the upper surface has been noted but not explained. If the egg is compared with the fruit of the food-plant it will be at once seen that they resemble each other very closely, though the former is only about one-fourth the size of the latter. This resemblance is no doubt a protective device. The eggs are not laid in batches but singly, and probably scattered haphazard amongst the surrounding vegetation, where the food-plant occurs. *Melanargia galathea* L. also does this when laying its eggs, according to Frohawk.

In order to obtain the eggs, about a dozen moths were confined in a box with the food-plant. As the sexes do not differ in any visible way it was not possible to select females only. Perhaps the male is more active in the daytime, though there seems no way of ascertaining this. Edward Newman, who is generally very helpful in giving us information about the antennae of the different sexes, in this case could not help, as there is no appreciable difference. The first year's eggs were not successful as they proved to be infertile, but the following year out of about two dozen obtained in the same way a number of larvae emerged.

Out of the dozen confined insects, one only proved to be a female. and she laid about two dozen eggs, scattered about the box, but none on the food-plant itself. These were kept in as natural a condition as possible throughout the winter. The eggs were laid at the end of June or the beginning of July (mine on 7th July), and the young larvae began to emerge at the end of March the following year. On account of the above difficulties it took three years to get a full picture of the life-history. In the list given by Fenn, 'Duration of the Ova State—The Geometrae' (*Ent. Rec.*, Vol. III, 1892, pp. 174 and 255) this is one of the longest times recorded, approximately between 9 and 10 months.

(2) The *Larva*. The first stage larva measures nearly 3 mm., pale green in colour, with a darker, almost purple, dorsal line and a faint sub-dorsal line; the head is pale orange. It is without any prominent setae, except on the last segment, as shown. When resting it takes up the characteristic Geometrid attitude. This subfamily (Oenochrominae) generally passes through four instars, sometimes five. Half-grown larvae were also found in the wild near the end of May, the measurement being about 18 mm. It prefers the flowering-head of the plant and when resting amongst the leaves is practically invisible. It is a night-feeder, but does not move from the plant during the daytime. At full growth it measures 24 mm. Looked at from above it is almost sexangular in form, still pale green, with only a subdorsal line,

the only prominent setae being on the head and the last segment, as shown. This segment is divided into a point marked dull orange. There is also a pink form of the full-grown larva, several of which were found in the wild.

(3) The *Pupa*. At the end of May the larvae began to descend, hiding amongst the moss; but they make no kind of web and change in less than a week. The pupa is dull brownish, the wing-cases greenish at first, measuring 10 mm.

(4) The *Imago*. The moth appears every year during the last week of June and the first two weeks of July, flying the whole day but only in the sunshine. It measures 25 mm. and the sexes do not differ in size or markings. It will never be found at any other time. In flight it can easily be mistaken for a small Lycaenid, for example the female of *P. icarus*, *A. agestis*, or *C. minimus*, all of which look black on the wing. The jerky flight also resembles that of a butterfly rather than a moth. The insect may be said to be rather local though abundant where it occurs, this being accounted for by the fact that its ordinary food-plant is a comparatively local one. Newman records that it swarms in some places in Scotland and the author has found it in some abundance in Ireland, Co. Waterford. The first specimen to emerge of those bred was on 27th June.

EXPLANATION OF PLATE.

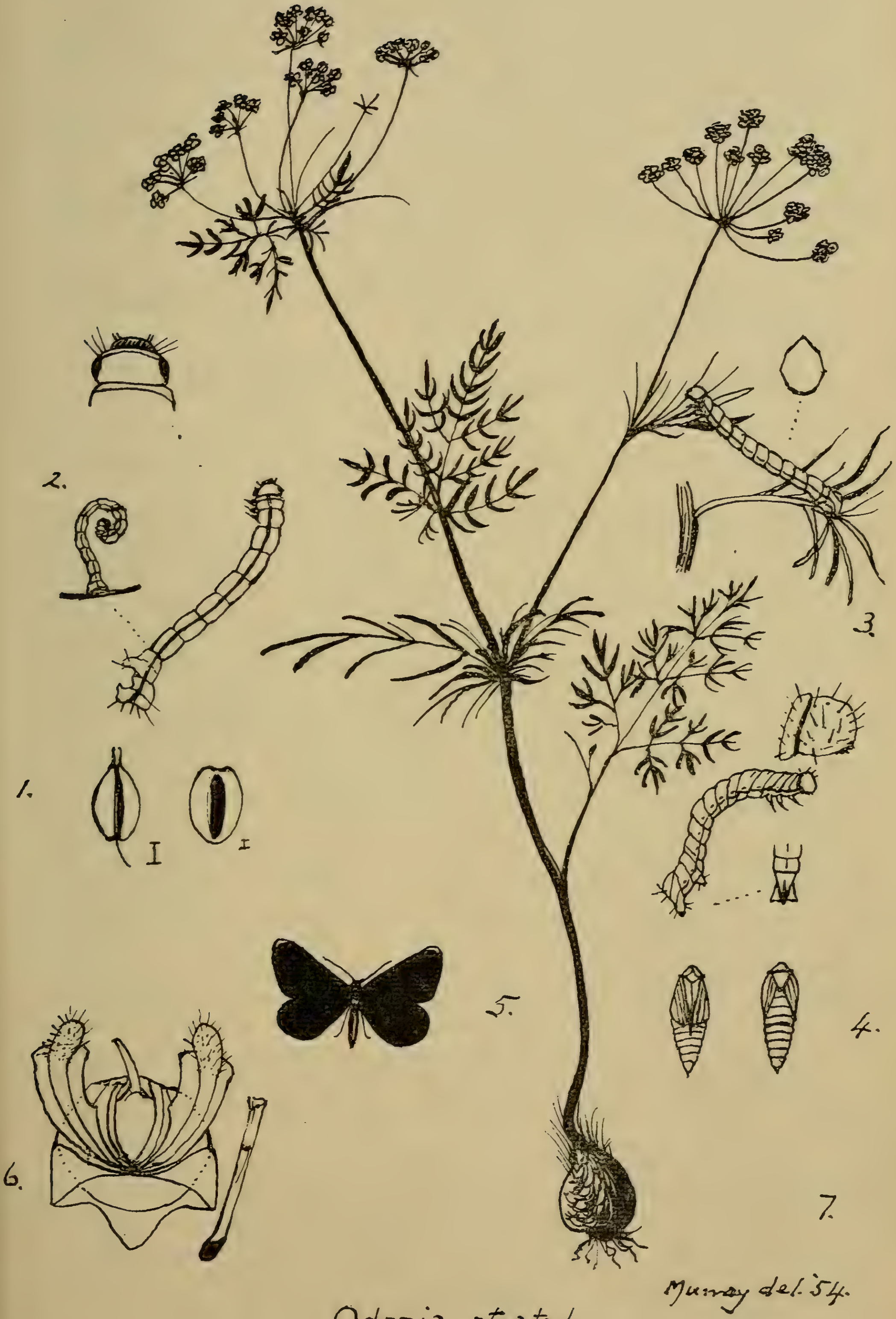
1. The Egg × 8 and fruit of food-plant × 3 compared.
2. Larva: first instar × 12 and head.
3. Larva: at full growth, natural size and enlarged.
4. Pupa.
5. Imago, natural size.
6. Male genitalia.
7. Food-plant *Conopodium majus* L.

---

(5) *Food-plant*. The ordinary food-plant, and we should say the only one used in England, is *Conopodium majus* Lovet (=*denudatum*), Pig-nut, formerly known as *Bunium flexuosum*. Allan (*Larval Food-plants*, 1949) gives two alternative food-plants, viz., *Chaerophyllum temulum* L., Rough Chervil, and *C. anthriscus* L., Burr Chervil or Keck, the plants after which the moth was first named.

The association of a particular insect with a particular plant is a problem as well as a fascinating study which has not so far been solved. Insects are dependent upon plants for their food, often also for their protective resembance and to a greater extent for their distribution. Plants in their turn are dependent upon insects for the fertilisation of their flowers. We know we shall always find *Anaitis plagiata* on *Hypericum*, *P. bifaciata* on *Bartsia* or *Euphrasia* and *P. vetulata* on *Rhamnus*, but on no other plants.

Why are they confined to these particular plants? Other moths seem to use almost any plant available. The *Pterophoridae*, for example, choose the greatest number of different plant families, including the *Compositae*, *Labiatae*, *Scopulariaceae*, *Saxifragae*, *Droseraceae* and also even the *Gentianaceae*. Meyrick suggested (*Gen. Insect fac. 100 Wytsum, Brussels 1910*) that the Plume moths are of more recent origin than other families, having originated in the continent of Asia,



Odezia atrata L.

because there the family is found in its greatest diversity of generic forms and Asia was completely isolated from other continents by wide seas. This theory is only conjecture, but it has interesting points.

Perhaps the association of plant and insect can be traced back to metabolism, yet no one has told us how the individual insect is affected or how it responds to these influences.[1]

Insects may all easily be killed off by D.D.T. and other disinfectants, but it is a much more difficult thing to find out how the living insect reacts to various chemical properties in the soil, and thence absorbed by the plant and insect in turn. We know that *atrata* chooses an umbelliferous plant and no other—but why?

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[1] [See A. D. Imms: *Recent Advances*, 1937, p. 299. It is usually held that polyphagy is phylogenetically the older habit, oligophagy and monophagy being more recent developments.—P.B.M.A.]

Notes on *Coleophora salicorniae* Wocke

By S. WAKELY.

Records of this species are so scarce that the following notes should be of interest.

At the end of October 1953 I received from Mr. T. R. Eagles a small bag containing shoots of Salicornia, together with some larval cases of a Coleophorid found on *Juncus gerardi*. These latter proved to be *Coleophora caespititiella* Zell., a common species. The shoots of Salicornia contained larvae which Mr. Eagles suggested were dipterous. I did not examine these, but wondered myself if they could possibly be *Phthorimaea salicorniae* Her. Being busy at the time, the bag of Salicornia shoots was hung up outdoors for the time being. Some weeks later I went through the material carefully, and found some Coleophorid cases which I had not noticed before. I then decided to place the debris with the cases in a glass pot containing about an inch of damp peat, and in the spring a daily watch was kept to see if anything emerged. It was not until the 25th of July 1954 that the first moth emerged. It was unlike any species of Coleophorid I knew, the base of the antennae being thickened with scales. However, it was soon identified as *C. salicorniae* Wocke, a species unique for the fact that the larva feeds inside the stem without a case, but constructs a case when full fed and leaves the plant. This, however, is only temporary accommodation, for the larva soon leaves the case and burrows into the soil or mud, leaving the case on the surface.

Further information on the distribution of the insect was sought, but I could find very few records. Meyrick gives: "Sussex, on coast, local".

In Vol. II of Tutt's *Practical Hints for the Field Lepidopterist* it is stated: " . . . Owing to the short time during which it inhabits the case it is somewhat difficult to collect in the larval state and is not easy to breed, but, in compensation to the collector, the imago is sometimes found in abundance amongst the foodplant in excellent condition in July . . . Portland, etc., on salt marshes and muddy coasts".

Morey's *A Guide to the Natural History of the Isle of Wight* (under the older name of *C. binotapennella* Stt.) states: "Yarmouth saltmarshes, common among *Salicornia herbacea* (Vic. Hist.)".

In recent years Mr. S. C. S. Brown has found the larvae and the moth on the Hampshire coast.

The consignment from Mr. Eagles was collected at Shingle Street, Suffolk, on the occasion of an excursion from the Flatford Mill Field Centre, and I am grateful to him for sending me such an interesting insect, which has also yielded a new county record. I might add that about a dozen specimens were bred, the last emerging on 12th August 1954.

Some Observations on the Working of a M.V. Lamp

By Clifford Craufurd.

In 1952-3-4 the trap used was a home-made one, constructed from a wooden 'Tate' sugar box. It was about 20 inches high and consequently there was a deep shadow round the box. Some moths attracted to the light missed the light and the funnel into the box, and alighted in the shadow. Upon occasion, when rising again out of the shadow, some moths flew right away from the light, while others were again attracted to it and eventually entered the box.

As the trap was placed on a lawn within 60 feet of bedroom windows, a screen consisting of a wooden box lid, two inches deep, 30 inches long and 20 inches wide, was fixed up firmly on sticks. In the lid a cardboard suit-box was fixed, and slits about ½-inch wide were cut in the lower half of the lid of the cardboard box. Many moths entered through the slits and climbed to the top of the box, where they remained.

In the morning the trap and the box were taken into the house and the number of moths inside each counted and noted down. Around the screen a white sheet, doubled over loosely, was suspended as an added attraction, and the moths in the surrounds of the trap were also collected and counted. It was noted that the percentage of moths left in the trap when it was cleared between 8 and 9 o'clock in the morning was small compared with the whole number attracted.

In August 1954 I began to get up at dawn every day, and after taking the trap and box into the hall of the house I covered up the trap with a large bag like a net. The numbers of moths in the surrounds of the trap, of those coming up into the net, and of those left in the trap were separately noted, and the percentages have worked out as follows:—Surrounds, including box, 40%. Net, 20%. Trap, 40%.

It will be seen from these figures that if the trap is not taken in at dawn and covered up only 40% of the insects attracted are retained. About 20% fly away when the daylight strengthens and the m.v. light consequently weakens, while those outside the trap fly away or are eaten by robins, tits, sparrows, and other birds. When I have been taking in the trap nearer sunrise than dawn I have often seen a robin waiting to snap up any unconsidered trifles.

I have noticed one interesting thing about robins and moths. On many occasions I have watched robins pass by moths and caterpillars which made no movement. But the instant a moth or larva *moves* it is snapped up. A good testimonial to the value of procrypsis! Perhaps this is also the reason why a moth disturbed and falling to the ground sometimes shuts its wings and draws in its legs, 'shamming dead' among the herbage. I have seen a robin actually walk over motionless moths.

This year, 1955, my son has made for me a trap out of a chicken-brooder. It is similar in shape to the traps sold by entomological dealers but has an all-metal top, which is painted a shining white. It is reversed to make a funnel. It is 3 inches less in diameter but 2 inches deeper than the usual trap. The surrounds consist of four wooden boards painted white which reflect the light and reach to the ground, so that there is no shadow. Many moths which do not enter the trap take cover from the light beneath the boards. As the trap is now placed on a lawn where it does not shine on to a bedroom window the screen and box are not used.

The percentages now are:—Surrounds, 30%. Net, 28%. Trap, 42%.

The ideal method would be to have a large bag on a steel frame which at dawn would rise and cover the whole trap and surrounds, thus preventing moths escaping or birds eating those outside the trap. Then one could stay in bed! I want to emphasize that by leaving the trap untouched till breakfast time 60 per cent of the moths attracted are not taken. To get the whole catch one must get up at dawn before the m.v. light fades and the daylight strengthens. A friend of mine is now making a trap which is to be controlled by an alarm clock. The clock will pull the switch and also glide a cover over the top of the trap.

One night a Long-eared Bat (*Plecotus auritus*) entered the trap and remained there till the morning, playing havoc with the moths. In the last week of May 1954 a Pipistrelle Bat (*Pipistrellus pipistrellus*) was taken in one of the m.v. traps and a second specimen has been taken this spring (1955). I have also seen a Great Tit fly out of the box. There are certain of the burying beetles which enter the trap and which I am sure have eaten or damaged moths. Cockchafers are also a damaging nuisance.

The Geometers are not attracted to the light so strongly as the Noctuids. They are generally in the surrounds of the trap or come up into the net. *Plusia gamma* comes up a lot from the trap into the net being a day-flying insect, and the proportion of *P. gamma* outside the trap and in the net is greater than those that remain in the trap.

After all the moths have been boxed, counted and noted for recording, all moths, or about 98 to 99 per cent of them, are taken and released about a mile away from the house. On only two occasions have I recognized a released insect in the catch on the following day.

Owing to trees and hedges surrounding the garden of about one acre the light is somewhat circumscribed, but on this late date (24th May) this year 1,917 moths have been noted of 57 different species, with an average of 33 moths per night. In 1954 on the same date there were 1,284 moths of 40 species in my records for the year and an average of 22 per night.

On Writing Obituaries

By AN OLD MOTH-HUNTER.

Biographers, in the main, are inconsistent folk. They purport to delineate the subjects of their books yet almost invariably neglect to provide their readers with personal descriptions of the men about whom they are writing. Usually there is a portrait inserted as a frontispiece, commonly a reproduction of a painting or engraving or photograph; sometimes there are illustrations showing what the subject looked like at various ages scattered throughout the book:—"Bloggs aged 17 with his sisters Agnes and Mary outside the diningroom window at Turveydrop Towers: Agnes is on the right" . . . "Bloggs aged 23 with his parents in the garden at Hubblebubble Hall" . . . "Bloggs aged 41 with Julia Bloggs at Como" . . . "Bloggs aged 51 at Cuculla Castle with two friends", and so on. But it is rare for the reader to be told whether Bloggs was tall or short, strong or weedy, fat or thin, broad or narrow, and whether his face was sallow or rubicund, his hair black or white or brown or yellow or red, his eyes blue or hazel or pink. In each of the photographs he looks quite different. So we can read through a lengthy well written biography without ever being able to visualise the man about whom we are reading.

We are never told anything about his habits either. Was he careful or slovenly in his dress? Were his trousers habitually creased longitudinally or were they baggy at the knees and looked like collapsed drain-pipes? Did he customarily wear dreadful old clothes, or was he a dandy? What kind of a hat did he affect? Was he fond of walking or did he eschew all forms of exercise? Was he good at games? Did he play baccarat or prefer backgammon? A good or a bad loser? Did he swear? If so, was his vocabulary a rich one or did he constantly repeat himself, to the ennui of his family? Was he gentle and patient or austere or hot-tempered or sour or saturnine or cynical or hail-fellow-well-met? Did he appreciate good cooking or would he munch sauerkraut like an old sheep? Did he know anything about wine, or did he drink only brandy? Had he ever been known to swill beer with his fish, or commit any similar outrage? All these things, the components of character, we should be told.

For many years I looked upon the literary giant who wrote *The Decline and Fall of the Roman Empire* as a great big strapping fellow, of tremendous energy, striding about like a colossus. Only a big strong man would have undertaken, and brought to completion, such a Herculean task. It was quite a shock to find, later in my life, that Edward Gibbon was such a tiny little man that his feet did not touch the ground when he sat on an ordinary chair. He stood in fact only 4 ft. 8 in. high. George Borrow, on the other hand, I pictured as a dark Gipsy-looking man, of medium height and rather slight build, of no great physique; for the account of his Homeric contest with the Flaming Tinman does not leave one with the impression that he was a very strong man—until Watts-Dunton dispelled that illusion for me by describing him as an athlete of 6 ft. 2 in. with great physical strength and "a countenance of extraordinary impressiveness if not of commanding beauty" adorned with a mass of brown hair.

Of the personal appearances of the nineteenth century entomologists we know nothing at all beyond their faces. No biographers have been so heedless of the maxim that the whole art of biography is to show what a man *was*, not what he *did*, as those who have written obituaries in the entomological magazines. The *Ent. mon. Mag.* of 1914 depicts, opposite page 125, Blackburn, Knaggs, McLachlan, Rye, Stainton, Douglas, Barrett and Saunders; but of their build, their personal appearance and habits, nothing printed has come down to us. These men may have been as small as Gibbon or as big as Borrow for aught the magazines have told us. Knaggs looks a burly kind of man but may have been quite short; Saunders has the head one usually associates with a tall slender body; Barrett, pictured once or twice elsewhere in groups, seems to have been about the middle height. Tutt's portrait in this magazine (vol. 23) shows him to have been remarkably like Charles Dickens—a resemblance of which he was proud—and of course there are many still living who knew him well and can describe him with detail. But when these friends and acquaintances are dead where shall we find it recorded that Tutt was tall and thin and red-haired (until the last years of his life, when his hair was quite white), with the pale complexion that so often accompanies red hair?

These thoughts have come to me as I receive news that a man with whom I corresponded for many years has died and I have been asked to write his obituary. We never met, and now I am at pains to find out what he looked like. For it has never been my lot to visualise a pen-friend as he really is or was. This must be the case with most of us. Only a year or two ago I made a longish journey to meet in the flesh a man with whom I was on most intimate terms—by correspondence. When we met he stared and stared at me. "Well, well!" said he; "I have always pictured you as quite a different kind of man." I laughed. "It's the same with me," said I.

Photographs of faces do not help very much: they cannot convey the only thing that makes a man interesting—*personality*. And since the gift is never given any of us to see ourselves as others see us the portrait we prefer is usually one that our families decry. Conversely, the photograph of which we are ashamed is often hailed with delight as being a speaking likeness. Show any woman a photograph which is the living spit of her and as likely as not she will say "Don't be silly; it's nothing like me; I haven't got a great nose like that". So a portrait which is to be published should always be chosen for us by our relations and if they consider the only one available to be a poor likeness it should not be used at all.

But what a sad thought it is that only when we have transgressed the laws of our country is a "personal description" of us issued to the press. Had they been entomologists we should never have known that Defoe was "a middle-sized spare Man . . . of a brown Complexion and dark brown Hair, having a hook Nose, a sharp Chin, grey Eyes, and a Mole near his Mouth" nor that Dick Turpin was "about 5 Feet 6 Inches high, brown Complexion, very much mark'd with the Small Pox, his Cheek-bones broad, his Face thinner towards the Bottom, his Visage short, pretty upright, and broad about the Shoulders".

Wherefore, I suppose, the moral is that when we write obituaries of those of our fellow men who achieve notoriety (though it be only with net or sugaring-tin) yet were not of our personal acquaintance, we should always enlist the assistance of some friendly policeman to whom the deceased was "known"—of course only by sight. For policemen are taught to size up and register a mental picture of their fellow men, and doubtless we have all been taped at one time or another by the guardian on whose beat we happen to live. That we should be disappointed, perhaps even horrified, if we could read the policeman's description of us is but natural; for there is no man, not even the most humble, but racks the value of himself. Yet conceit survives not in the creations of our hands (unless indeed we be builders of pyramids) but only in our writings: we can recapture Cicero's prodigious *ego* but not that of a prime minister nor of a lord chancellor; and though we go down to entomological history as the first to net some stupendous rarity we may be remembered only as a man of insignificant appearance who stuttered and wore dreadful clothes. Dignity departs from us when we are dead: the grave-digger disinterring our bones pitches them aside as though they were stones or bits of rotten wood. It is all very sad—but I *should* like to know what my late pen-friend looked like.

Memories of a Naturalist*—I

By MALCOLM BURR, D.Sc.

About 1889 we settled in our new home, a house that my father built on the slopes at the edge of the woodlands facing East Grinstead, with fields running down to the brook that connected the old ponds, the middle one of which was always referred to as "the lake" and enclosed in our own grounds, and very picturesque it was. It was a permanent delight to me and eventually became the starting point of many a romance, especially on moonlight nights. It was deep enough at the broader end, some ten to fifteen feet, to be comfortable for bathing. My father stocked it with trout and tried a hatchery, but it was not successful owing to the dominance of the coarse fish.

In this attractive home, with its spacious garden, two tennis courts, richly stocked kitchen garden and plenty of fruit, with wilder land around, I spent a happy boyhood. We hunted with the Burstow and with the Surrey Stag, though I never took any real interest in the latter, the artificiality of which repelled me. We had good mixed shooting. I never cared much for organised covert shooting, but used to love to wander about gun in hand with Bogie, the gardener's boy, and my beloved retriever. I used to bring home a pretty mixed bag, such as a few rabbits, which swarmed in the woodlands, a partridge, perhaps a pheasant; and one morning I got five snipe and sometimes I would shoot a moorhen, just to vary the bag a bit, though they were not much sport to shoot, nor very attractive to eat. I have, however, seen moorhen break covert at a considerable height when it was being beaten for pheasants and fly fast and straight. Occasionally I would bag a wild duck and on one unforgettable day I flushed three teal on the upper lake. It was a long shot, but I was quick on the mark and got a right and left. That was one of the proudest days of my life.

The varied nature of the country, with its mixed and unspoilt woodlands, streams, ponds and marshes, as well as open fields, provided a fine field of activity for a budding naturalist and—while I have no record of any sensational capture—I gathered a useful general knowledge of the insects and other forms of wild life. Nowhere have I seen such an abundance of moths, both individuals and kinds, as flew into our open windows in the summer, nor—outside the Warren—such an exuberance of butterflies that were the delight of my eyes on the flowers in the grassy roadways cut through the woods.

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*Through the kindness of Mrs. Burr we are able to print some extracts from the autobiography which the late Dr. Malcolm Burr left unfinished.—ED.

One evening an interesting neighbour paid us a visit. It was Captain Hairby, a fine old sailor who lived nearby but was usually away at sea. He was Commodore of Lamport and Holt's fleet and on the Rio de Janeiro-Buenos Aires run. He was sailing again in about a week.

"Why not let the boys come with me?" he suggested to my father.

I was electrified. South America! Was it possible that I could ever go there? With natural history books, travel had been my pabulum and stories of the sea, and Marryat, Mayne Reid, Wallace's *Malay Archipelago*, Darwin's Voyage of the *Beagle*, Bates's *The Naturalist on the Amazons*, I knew well. I held my breath incredulously with inward prayers, while spellbound I watched my father's eyes.

My mother did not take it seriously at first, but my father did. "It will be a grand thing for both the boys," he said, "to see something of the world, and the sea voyage is the finest thing for Malcolm."

My mother asked to be allowed to sleep on it and the next morning gave her consent.

A week later they saw us off from Southampton. We were sailing on s.s. *Wordsworth*, from Antwerp, under the Belgian flag. As the boat drew away from the quay I saw my mother and father turn and disappear round the corner of a building. How little did I think what she was suffering and how brave she was to entrust both her boys to a comparative stranger on what must have seemed to her a wild expedition.

We were given a cabin well astern, where the throb of the screw lulled even my excited brain to sleep. Ray had taken the lower berth, of which I was glad, as I preferred the upper, and always have, both at sea and in the train. Early next morning I realised that we were pitching heavily and I enjoyed the motion, which I found invigorating, while the creaking of the timbers was music in my ears. This was adventure, real adventure at last!

Looking round with curiosity, I noticed a small, brown metallic receptacle hooked on to the edge of the berth. I had never seen such a thing before and I stared at it, puzzled, until it dawned on me that it was put there for me to be sick into! Never had I been so deeply offended! To suggest that *I* could be seasick! In my rage I flung it across the cabin, then slipping on some clothes, went on deck.

The sea air so early that February morning was intoxicating. A heavy swell was running, and the pitching added a good spice of adventure to walking up and down. I practised, determined to get my sea legs quickly. It was about six and my chief concern was to know whether there would be enough for breakfast.

Four days later I saw a foreign land for the first time, for I did not count week-ends at Boulogne-sur-Mer with my parents. It was Madeira.

The wonderful island is really exotic and I revelled in the strangeness of it. Instead of carriages drawn by horses, there were sledges drawn by oxen, that glide smoothly and quietly over the cobbles. We did the usual excursion up the mountain to the church and tobogganed down, which was exciting, as the runners with us steered us skilfully down the narrow lanes between the houses. During these few wonderful hours ashore at Funchal I made the acquaintance of tropical fruit, such as guavas, which surprised me for being pinkish, and rather insipid, when their jelly was dark red and delicious. custard apples, which I found sickly, and nesporoes, as loquats are called in the South Atlantic, which I liked at once for their tart and refreshing juice. A thing that impressed me was the wine. To me, Madeira was a rare and romantic luxury that I loved but seldom tasted, and here were working men drinking it! It was a revelation. It had never entered my head that there could be such a thing as a Madeira *vin ordinaire.*

The following day we passed well to the west of Teneriffe, which I could just distinguish as a cloudy triangle in the sky, and then through the Cape Verde Islands. These made a great impression on me, for I had read Darwin's account of his visit. They consist entirely of volcanic ash and all soil is imported and I was duly impressed when I was told that there it was a greater crime to cut down a tree than to kill a man. The ship's course lay through the narrow channel that separates the two lofty islands of Sâo Antonio and Sâo Vincente, which is fixed in my memory as the scene of a wonderful spectacle that I have never witnessed again. Two sperm whales were making their way northwards. These huge animals lifted their monstrous heads, which form one-third of the total length of the body, high into the air, to come down with a crash and an enormous splash, as a stroke from the flukes of the terrific tails drove them through the water.

On March 4th I witnessed a wonderful sight. The stopping of the screw awakened me before dawn and I went on deck. We were lying off Rio Bay, waiting for the daylight to make our way in. The scene I gazed upon spellbound was amazing. It was all the glory of the most magnificent piece of coast in the world illuminated by the flush of dawn. The flashing light on Raza had not yet stopped, but the glimmer gradually brought into view the broken outlines of the mountains that surround the bay, queer in outline, softened by the luxuriant growth of tropical forest on the flanks. Gradually daylight revealed details, from waving palms to the Sugar Loaf and the fang of Corcovado and the queer forms into which the crystalline schists weather out.

Captain Hairby took us ashore. Rio to-day, thanks to the stupendous background provided by nature and the generous expenditure of her citizens, is the town with the most magnificent setting in the world and a well laid out city at the same time. But in 1891 it was still the old tropical colonial town, with trams drawn by mules, and carrying an atmosphere suggestive of pirates. In the streets I saw a strange and unpleasant sight, an albino negress, with yellow fuzzy hair like a new sponge and her ugly features not redeemed by the ebony lustre and friendly smile that so often makes negroes and negresses attractive.

A carriage with a team of six mules took us, mostly at a gallop, up the hill to lunch at Tijuca, where I bought experience by nibbling a little black bean. The others watched my reaction, which was swift and violent, for it was a chili of piercing intensity. But, in spite of my momentary suffering, that chili laid the seed of a vice to which I have ever since been addicted, a passion for hot peppers.

I had the privilege of the box-seat next to the driver, so that I was lost in admiration at his skill with the ribbons for that team of six mules and at the way he handled his whip. This had a short handle like an English hunting crop, but the lash was long enough to reach the leaders. It was wonderful to see him give a flick with his right hand, the long thong straighten out, catch the leading mule with a sharp flick on the flank, and then with a jerk he pulled it back and with a single movement caught it and curled it up in his hand.

Captain Hairby kept calling my attention to the trees as we passed, almost each one carrying epiphytes, Bilbergias and Tillandsias, and other orchids, and I was struck with one big tree with flowers of differing colours, *Hibiscus mutans.* And what English boy ever realises that bananas grow on trees? True, years ago my governess had told me that the leaves are so big that when a nigger is caught in the rain he pulls off a banana leaf and covers himself with it, but I had not taken that seriously. Now I saw real banana trees, with the enormous hands dangling. I was genuinely shocked when they told me that the trees must be cut down after bearing fruit once. This struck me as all wrong and I forcibly expressed the opinion that something ought to be done about it.

Unfortunately, yellow jack was raging in the city and they made my flesh creep with stories of black vomit and bituman in the urine. In those days Colonel Gorgas and his men had not taught the world that this dreadful fever can be virtually stamped out by the destruction of the mosquito that distributes it, so that places which in those days were pestilential holes, like the Brazilian ports, were later converted into health resorts. I had gloated over tales of the Spanish Main, of pirates, and plague-stricken ships, where everybody on board died, so my own presence in the atmosphere of such horrors made this great adventure seem the real thing.

So to avoid the infection, on the second day of our visit Captain Hairby took us to Governador Island, in the middle of the Bay, and there I had a marvellous day among the tropical butterflies. There were some, pretty creatures, that were a very easy prey to capture, as they flitted slowly between the trees with a sluggish flight, as though they were not afraid of anybody or anything. Though I did not realise it at the time, I was in the presence of a phenomenon that was to give rise to endless debate and a vast literature, Mimicry. These butterflies are distasteful to such enemies as birds and, their reputation being known, they are avoided and so enjoy a considerable immunity. Hence their casual flight and neglect of usual precautions. It is one of the most marvellous phenomena of nature that there are many other kinds which belong to totally different families of butterflies which have acquired so close a resemblance to those nasty ones that very many of them escape too.

Owing to the prevalence of the fever we were unable to go ashore again and sailed for Buenos Aires. As we entered the vast estuary of the Rio de la Plata, the River of Silver, generally translated as the River Plate, the first thing I noticed was that, like the Blue Danube, it belies its name, for it is yellow, muddy and opaque.

We passed Monte Video, which takes its name from an isolated hill about four hundred feet high, the only excresence in the landscape for a thousand miles, I believe; and dropped anchor off the Argentine capital. As we had come from a fever port, we were in quarantine and anchored out in the middle of the river. I do not know how wide it is at that distance of a hundred miles or more from the mouth, but I believe about thirty miles and the country is so flat that we could barely see the palm trees on the north bank and buildings on the south, the highest objects in the landscape.

April 1st found us still patiently waiting for our release from quarantine. At a half past seven in the morning I crept down and beat the gong. When half an hour later the steward beat the dressing gong, naturally everybody thought it was the breakfast gong and came trooping into the saloon, all our sixty odd passengers. I went too to see the fun. They seemed a little surprised that the tables were not completely laid, but sat and waited. After a time they began to get restless and show signs of impatience, and when the chief steward walked through, equally looking surprised to see them all waiting there prematurely, they asked him when breakfast would be ready.

"Oh, in about quarter of an hour," Andrew replied.

The passengers looked at one another in dismay, but then I could bear it no longer and bolted out on deck. I must say they took it very well, for they realised then it was the first of April and they had all been neatly fooled.

After a week or so the passengers were taken off to spend another spell of isolation at the quarantine station of Martin Garcia, but Ray and I remained on board, and were treated by the officers and crew as members of the family. Time slipped by and I found plenty of interest. For instance, there was fishing. The best kind of catch was the *dorado*, a handsome, golden red, fierce surface feeder that was reasonably edible. For bait we used a small kind of catfish, as big as a herring. The *dorado* put up a good fight, but was hauled in by brute strength, as there was no delicacy about these strong lines and massive hooks. We often foul-hooked another kind of catfish, a hideous brute, with huge gaping mouth. It seems that he was lazy and lay on the bottom with his mouth open for the stream to wash his dinner into it, and so was as potbellied as some men who live a similar life. These catfishes have hinged pectoral fins with the first ray very strong and sharp. It is a powerful weapon. I saw a man carelessly turn one over on deck with his foot. The fish was under a couple of pounds, but struck with his fin so sharply that it cut right through the rubber sole into the man's foot, making a nasty wound. Once it is up, it is locked, and the fish will allow itself to be bent double rather than release it.

The deck of a ship anchored in midstream in so huge a river would not, one would think, be a good place for collecting butterflies, but all the same I did pretty well. There were great quantities of a big, brown kind with black veins and white spots, flying across the river. I had no difficulty in catching several dozen even on the cramped area of the ship's deck, together with one or two stragglers of other kinds that had been caught up in the crowd, so to speak.

Here again, without realising it, I was in the presence of another strange phenomenon of nature which is not yet understood, the migration of butterflies. This particular kind, the Monarch butterfly, is common in North America, where it effects regular mass migrations over immense distances, over a thousand miles, from southern Canada, and even Alaska, as far as Florida and Mexico. The maximum distance is about fifteen hundred miles. In the course of ten months, from October to June, the same insects will fly up to fifteen hundred miles to the south and *back again*. As a distinguished student of the problem, Dr. Williams, remarked, not bad work for a butterfly about five inches across the wing and weighing but the fraction of an ounce. It is by no means excluded that they may sometimes fly the Atlantic, for on several occasions they have been caught in England.

Another hobby that I was able to indulge on the boat was picking up foreign languages, in particular as much Spanish as possible. I had a notebook in which I entered a few characteristic words and especially the numerals, in as many languages as I could collect from all sources, and in this the polyglot crew helped me, so that before long I had several dozen languages thus recorded. I suspected Captain Hairby of pulling my leg when he told me that in the Pelew Islands the numerals up to five were *enit*, *teenit*, *tetherit*, *fetherit*, *fumpit*. I have never succeeded in verifying this, but the words have a clearly Indo-European ring.

A passenger who joined the ship for the homeward journey was a former Governor of Vancouver and he told me about Chinook. Here too I was on my guard, for it was difficult to take seriously such words as *kinchoch*, meaning Englishman, and *klarhowaya* as a greeting. But he explained to me that it was a jargon, a sort of pidgin-Indian, which had grown up among the early traders for communication with the Chinook Indians and was now established over a big area as a useful *lingua franca*. It appears that the origin of *kinchoch* was King George, not our modern majesties, but George III being intended, while the greeting was the Indians interpretation of "Clark, how are you?", thus perpetuating the memory of a pioneer trader of those old days. I remember too the sentence *Mika cumtax ekta nika warwar?* which means, Do you understand what I am saying? I did have the opportunity of verifying this, as many years later I found a book on the Chinook jargon.

In due course we sailed back for home, still in quarantine, and so were not allowed to land at Madeira. I had the mortification of watching those delightful ox carts gliding along without me. We landed at Southampton one evening in May, still nominally in quarantine, but the formalities were not noticed, as the germ cannot exist at a temperature below 60° Fahr., and our authorities are not frightened of yellow jack. My father and a friend met us. We reached Victoria Station just too late to catch the last train home to Dormans and so did the next best thing. We took the last train to Edenbridge, a distance of some seven miles from home.

We arrived soon after midnight and hunted for a fly to drive us home. But it had been the day of the local races and not one single driver was sober. There was nothing else to do but foot it. *Solvitur ambulando*! Fortunately it was a fine night as it was three in the morning before we got home and I can imagine my mother's state of apprehension. I also remember a curious craving I had. For several months I had been living on tinned milk, which in those days was not so well prepared as nowadays and I was simply longing for a good draught of real, fresh, foaming, creamy milk. They brought it and I swallowed a pint of it at a gulp.

On returning to school I felt like a man of the world . . . .

(*To be continued.*)

Current Notes

The *Journal* of the Society for British Entomology issued last March (Vol. 5, Pt. 3) has three papers on Diptera:—C. N. Colyer (on the Phoriid *Megaselia* (*Apiochaeta*) *vestita* Wood); J. E. Collin (Key for the identification of British species of *Pycnoglossa* and *Chirosia* (Anthomyiidae)); and E. C. M. d'Assis-Fonseca (*Pseudophaonia steini* Ringd. in Suffolk). There is also a paper by D. F. Owen on Coleoptera taken by swifts. Twelve meals obtained from young and adult swifts at the nest "comprised a compact ball of 300-1,500 insects (plus some spiders), many of which were still alive". The 12 meals contained 1,201 beetles of 19 families and at least 81 species, the number of beetles in a meal ranging from 6 to 274.

Trans. Soc. Brit. Ent. for March 1955 (Vol. 12, Pt. 1) consists of a 48-page paper by I. H. H. Yarrow on the British ants allied to *Formica rufa* Linn. The *rufa* group in our islands comprises *F. rufa* L., *F. nigricans* Emery, *F. lugubris* Zett. and a new species, *F. aquilonia*, which has previously been treated as a hybrid. These ants are the large wood ants whose thatched nests are a feature of much of our countryside. *F. rufa*, so plentiful in the New Forest, is here recorded by Yarrow as occurring in some 34 English and Welsh counties as well as in the Isles of Man and Wight. This is an excellent paper and it contains a bibliography of more than a hundred titles.

In the *Irish Naturalist* for January 1955 (Vol. XI, No. 9) R. F. Haynes records (at p. 255) the existence of a hitherto unknown colony of the Geometrid moth *Perizoma taeniata* Stephens in Co. Donegal. Some years ago Colonel Donovan reported *taeniata* as occurring abundantly at Rathmullan in that county, and now Mr. Haynes has turned it up in the Letterkenny district. This new locality is in private grounds and permission has to be obtained to enter them.

Volume IX, Nos. 1-4 of the *Boletin de Entomologia Venezolana* (Caracas) issued a few months ago, contains an interesting paper (in French) on the urtication caused by the lepidopteron *Hylesia urticans* in French Guiana. The evil courses (pruriginous dermatitis) to which this insect is prone have already been dealt with in several books and articles; it is indeed a well-known pest. (Incidentally the moth has not yet been recorded from Venezuela). The authors of this paper, H. Floch and Y. Constant, recommend those who have been "stung" to apply at once a 50% lotion of Sodium hyposulphite, which (they say) destroys the poison if used immediately. Delay in applying the remedy can result in serious trouble. A cat which ate a specimen of *H. urticans* was afflicted with intense stomatitis, and playing with one brought on a rhinopharyngitis resembling hay fever.

The Times of 8th July 1955 contained the following, from its Tokyo correspondent:—"*Euproctis slava* has been causing widespread concern since mid-June in the Kansai area. This poisonous moth has already affected more than 300,000 people, two-thirds of them in Nagoya. When people are touched by the moth a severe itch develops and spreads in a rash all over the body. An effective cure has not yet been found, but the disease is not lethal. It is not the pest's first appearance. It is widely distributed in Japan, Korea, Siberia, and China. In the Chiba peninsula north-east of Tokyo it appears yearly. Its life span is a month at the most. Welfare Ministry experts who have been investigating in Kansai state that most of the moths disappeared by the beginning of July. The authorities are combating the pest with D.D.T. and B.H.C."

We remember reading some years ago in a book called *Pioneering in South Brazil* (1878) by T. B. Bigg-Wither an account of some particularly unpleasant caterpillars met with in the course of making a road in Brazil. "Their bodies were protected by triple coats of mail; that is to say, they were covered with a hairy substance which in some species took the form of moss and in others of groups of stag-antlers. To attempt to touch these creatures with the naked hand was a scarcely less hazardous undertaking than plunging one's hand into a live hornet's nest. Each hair or point has the power of inflicting a sting as painful as that of a certain venomous species of red ant very common in parts of the forest, so that if by chance, as not unfrequently befell us when working on the road, one of these caterpillars happens to drop off a tree on to the hand, or worse still on to the nape of the neck, the pain is almost intolerable, the spot on which the creature falls immediately becoming inflamed, and afterwards swelling up to a great size. The best cure for these most painful stings is the immediate application of some strong spirit, either brandy or ammonia."

In 1948 the Danish entomologist N. L. Wolff found a new species of *Nepticula* in Jutland, and a few years later he found the same species abundant in another part of Denmark. The foodplant was discovered to be *Salix repens* and from larvae collected in late September and early October 1953 twenty-three imagines were bred. The species was described and named *repentiella* by Wolff in *Entomologiske Meddelelser* (Copenhagen) 27 (1955), pp. 82-90. Now the same authority records and describes, in *Opuscula Entomologica* (Lund) 20 (1955), Pt. i, pp. 49-53, yet another new Nepticulid, this time from Sweden, where a male moth had been bred by Dr. Per Benander from mined leaves of *Salix repens* taken at Blekinge on the east coast. It has been named *benanderella* in honour of its discoverer and a photograph is given in Wolff's paper of both *repentiella* and *benanderella*, as well as diagrams of the genitalia of the two species and of *N. obliquella* and *N. salicis* for comparison.

In the same issue of *Opuscula Entomologica* Dr. Per Benander describes a new Oecophorid allied to *Agonopteryx flavella* Hb. which he has separated from Swedish specimens of the latter insect. Drawings of the genitalia are given and the new moth is named *roseoflavella*. The foodplant is *Saussurea alpina*, the larva ensconcing itself first in the folded edge of a leaf, and finally in the stem, whence it eats its way down to the root.

Two new British species of Staphylinid beetles are reported by H. R. Last in *Ent. mon. Mag.* of April (Vol. xci, p. 106). Of one of these species, *Atheta* (*Hygroecia*) *caucasica* Brund., a single female was taken by Mr. P. Harwood at Aviemore on 16th April 1946. The other is *Atheta* (*Microdota*) *boreella* Brund. of which a male specimen was taken by H. R. Last at Leicester on 15th July 1946. *A. caucasica* appears to have been recorded only from the Caucasus and near Leipzig. *A. boreella* has chiefly a North Scandinavian distribution but has been recorded from Germany, Switzerland, Italy and Austria.

The same issue of *Ent. mon. Mag.* records the capture of an American Plusiid moth at Aberystwyth, Cardiganshire, on 19th July 1954, which had probably flown ashore from a ship proceeding to Liverpool. A photograph of the insect is reproduced and shows it to be an immense moth no less than 5¾ inches from wing-tip to wing-tip. It was quite a shock to see a *Plusia* of these dimensions, until we read beneath it that its actual wing-expanse was only 37 millimetres. Of late years a fashion has sprung up—especially in books of "popular entomology"—of depicting butterflies and moths magnified four or even more times their natural size. This practice is altogether to be deprecated. If it is necessary (owing to the lack of detail occasioned by the method of reproduction) to emphasize wing-markings etc. the insect may be enlarged × 2; but even this should be necessary only in the case of the microlepidoptera. Most of us have a magnifying-glass somewhere in the house.

There seems to have been an immigration of *Pieris brassicae* L. across the Essex coast at the end of May. On the 31st one could count twenty and more in each field over a considerable area in the Bishop's Stortford district and this plenitude continued for several days. The native bred imagines of this species were emerging in the same district at the end of April.

Our friend Mr. Clifford Craufurd tells us that last autumn he gathered an armful of yellow toadflax (*Linaria vulgaris* Mill.) with the intention of breeding a sufficiency of *Eupithecia linariata* Schf. to renew his series of this 'Pug'. Chancing to look into the box containing the resulting pupae on 4th June he saw that a specimen of *Epithecia venosata* Fab. (*insigniata* Hb.) had just emerged, and on 7th June a second specimen of the Netted Pug appeared. One's immediate thought is that he had inadvertently gathered some *Silene* among the toadflax; but he is positive that he did not do so. So in the coming autumn he will gather toadflax again at the same spot, and this time each plant will be scrutinised before it is put into the breeding cage. If thereafter *E. venosata* should appear, a new foodplant will have to be recorded for that species.

We hear that *Hadena compta* Schf. is now well established in the Colchester district of Essex: larvae in plenty can be collected from beds of sweet william in local nurseries and gardens. The specimen of this moth taken by Mr. Craufurd in Bishop's Stortford (on the borders of Essex-Herts) in 1954 (*Ent. Rec.*, **66**: 228) must surely have been either locally bred or a wanderer from the eastern side of Essex. It is to be hoped that this pretty moth will, like *Polychrisia moneta* Fab., spread throughout our island in due course.

Among several new Nature Reserves 'declared' by the Nature Conservancy is one of unusual interest. This is the remarkable area of raised bog in Cardiganshire known as the Gors goch glan Teifi—the red bog on the banks of the Teifi, now to be known briefly as Cors Tregaron since that town is situated at its southern end. The bog is more than five miles long and about a mile and a half wide, the acreage brought into the Reserve being 1,500. It is a very ancient place indeed and has an interesting fauna and flora. A few years ago we were told that *Panaxia dominula* L. was to be found there, and up to the beginning of this century it harboured a race of ruddy-coloured polecats, as well as otters and foxes and many interesting birds.

Notes on Life-Histories, &c.

What is the correct entomological term for the hiding-place which so many larvae construct by spinning together a leaf or two or more leaves? Recently, finding I was ignorant of the correct technical term, I have made a search among the literature and to my surprise I cannot find that any English entomological writer has ever used, or even suggested, a term to denote this very common thing. Kirby and Spence, who printed a glossary of entomological terms in their *Introduction to Entomology*, 1826, have nothing to say on the subject, though in a footnote they use the French word *rouleuse* (quoting from the *Nouveau Dictionnaire d'Histoire Naturelle*, 1816-19) for the rolled-up leaf in which certain larvae, chiefly micros, live. But a *rouleuse* is a different thing from a hiding-place such as is constructed by *Clostera curtula*, *Achlya flavicornis* or *Polyploca ridens*, and these the French call *cachettes*. Why is there no analogous term in English?

A casual search through the books and magazines indicates that "retreat" is the word most commonly used. But this is plainly too loose a term altogether: a chink in the bark, the hollow stem of an umbellifer, a burrow beneath moss or lichen are all "retreats". Moreover 'retreat' often has, nowadays, a religious connotation. We need a term exactly analogous to the French *cachette*, and that is what we do not seem to have. The Germans doubtless have a word for it, though I know not what it is. Perhaps they call it simply a caterpillar's daytime hiding-place—"raupentageszeitschlupflochwinkel"—which is concise, accurate, and melodious but has too many letters for my liking. Snuggery, hiding-place, lodging, funk-hole are all too colloquial, 'residence' too redolent of the house-agent—"a commodious well-appointed larval residence, ideally situated amid well timbered surroundings" would strike an un-entomological note. Moreover when searching for larval residences none of us wishes to be offered "vacant possession" . . . .

For an obvious reason 'hibernaculum' will not do: it is inaccurate and so is 'tent', which the Oxford Dictionary definies as a "portable shelter of canvas, cloth, etc. supported by pole(s) and stretched by cords secured to t.-pegs driven into ground''. Not even *Dicycla oo* could construct such a residence as that. *Nidus*, too, is unsuitable, because it denotes a nest, which is a ''structure or place made or chosen by bird for laying eggs and sheltering young''. ('Laying eggs', you will notice —not 'depositing ova'). 'Habitation' is as bad as 'residence'. 'Messuage', 'hermitage', 'bower', 'den', 'cache', 'tabernacle' and 'asylum' are all ruled out by the dictionary for one reason or another, and so are 'adytum', 'oubliette' and 'abditory'.

'Dormitory' might do; but this denotes a sleeping-room with several beds or cubicles, and the three species which I have mentioned prefer to sleep by themselves. Moreover who can say whether a caterpillar ever really goes to sleep? Its immobility may be due only to the absence of any kind of stimulus. Most animals, not excluding entomologists, are dormant when the crop or stomach is full; but dormancy does not necessarily imply sleep despite the etymology: it denotes only, *teste* the Dictionary, an inactivity which resembles sleep. *P. ridens* may be very wide awake indeed by day, and if this be really so the opposite to dormitory, namely expergiscatory, would be more correct since the Latin for ''to be awake'' is *expergisci*.

Quite by chance I have stumbled upon the right word. 'Latebra', pl. 'latebrae'. This word denotes, no matter which Latin dictionary one uses, a place where one can hide or lurk, and he who lurks is ''hidden *in*, *under*, or *about*'' asserts the Concise Oxford Dictionary, italics and all, which is exactly the status of *A. flavicornis* qua his umbrageous retreat, by day. It is therefore suitable to every species of macrolepidoptera which constructs, by its own unaided efforts, a hiding-place among the leaves of the plant whereon it lives. Virgil provides a precedent for stressing the final syllable; so if we follow the modern craze for speeding up pronunciation and call it ''lattybrer'' we can't go very far wrong.

But the way of the inovator, like that of the transgressor, is hard, etymologically. Three years ago (*Ent. Rec.*, **64**: 15) I quizzed the ''ova'' concept, that unscientific archaism which marks us lepidopterists out from the zoologists. But alas, my efforts had only a scanty measure of success and ''ova'' continue to disfigure our pages. Yet I will not give up hope that in some future age, when my bones have long since mouldered into dust, ''ova'' will be as extinct as the dodo, and ''latebra'' a mere commonplace.

P. B. M. A.

Notes and Observations

SUMMER IMMIGRANTS.—Walking over the Wiltshire downs on 27th May I noticed a specimen of *Vanessa atalanta* L., the first I have seen this year; then, on the 29th I saw another specimen, together with many *Plusia gamma* L., which was common from this day on. The following day came a pleasant surprise, for in addition to two further *V. atalanta* I saw a single specimen of *Vanessa cardui* L. One further *V. atalanta* was seen on 2nd June. It would therefore appear that an immigration took place on or a few days before the 27th May. All the specimens seen were in perfect condition.—G. B. ROGERS, Sergeants' Mess, R.A.F., Yatesbury, Calne, Wilts. 2.vi.55.

A NOTE FROM THE WEST COUNTRY.—This year, in the West Country the season started very late, and very few moths were visible at m.v. light in March. However, in April things seemed to buck up and by the end of that month I would almost go so far as to say it was early. *N. ziczac* first appeared on the 18th April and was followed by *N. anceps* on 25th April and *P. palpina* on the 28th of the same month. *D. ruficornis* first appeared on the 16th April and *D. rubiginea* came to the m.v. on 14th April. I have never taken the Prominents mentioned so early before.—ALAN KENNARD, Franklin House, Canford School, Wimborne, Dorset. 20.v.55.

NOTES FROM PURBECK.—On 21st June while tramping the foothills of the chalk ridge about 2 miles from Swanage (Dorset) a male *Colias croceus* was observed sunning itself on a bloom of Goat's Beard. It was in perfect condition and flew strongly as I got near it. *V. atalanta* has turned up in fair numbers these last two weeks, but all have been in poor condition, some badly worn. *Lysandra adonis* (*bellargus*) males are emerging along the Downs. This is rather late for this species, as I usually see them in mid-May.—LEONARD TATCHELL, Swanage. 27.vi.55.

OCCURRENCE OF M. STELLATARUM L.—Have you had many records of *M. stellatarum* this year? I saw one at Oxford on 25th June and another in my garden here today, both at valerian. Today's was remarkably tame. I stood within a foot of it and watched it for some minutes: I could see that it was very bald on the thorax. The Oxford specimen was attending the quarter-centenary celebrations in the gardens of Trinity.—H. SYMES (*in lit.*, 4.vii.55).

SCARCITY OF EARLY BUTTERFLIES.—Butterflies seem very scarce, and only a spell of warmer, calmer weather will improve matters. I had a few welcome days in Huntingdonshire shortly after Easter, but only a few of the hibernatng butterflies were on the wing. I did not see either *rhamni* or *c-album*, and Mr. Leeds, who lives at Wood Walton close to Monk's Wood, also reported a paucity of these two. I suppose we must blame the poor season of 1954. I am of the opinion that many female butterflies did not lay a very high proportion of their eggs. An exhaustive search in two places for *camilla* larvae produced no reward this time. This was in localities which have not failed me for the last two or three seasons. I did not require any quantity of the larvae, but it is always a pleasure to see 'old friends'.—GEORGE E. HYDE, 20 Woodhouse Road, Doncaster (*in. lit.*, 12.v.55).

A NOTE FROM WESTMORLAND.—Although summer weather has come at long last (and very welcome it is) the nights are still very cold. I was down at Witherslack last Sunday (29th May) with the m.v. lamp and saw only some six species, and most of these were singles only. The one exception was *L. chlorosata*, which is a pest in this area wherever there is any bracken—which means nearly everywhere. My garden trap has been poorly attended—indeed one night last week there was not a single moth in it—most remarkable for this time of the year. —Dr. NEVILLE L. BIRKETT, 3 Thorny Hills, Kendal (*in lit.*, 31.v.55).

Moths at M.V. Light in East Herts.—Moths taken in three m.v. traps in Bishop's Stortford have been noted during the past year and the records of the Bishop's Stortford and District Natural History Society have been increased by about 14 species by this method alone. Among the new insects *Lophopteryx cucullina* Schf., *Anaplectoides prasina* Schf., *Ennomos autumnaria* Wernb. and *Ortholitha bipunctaria* Schf. have visited the traps. Four *L. cucullina* came to one trap and another was taken at a window on 23.vii.53. Three *Lycophotia varia* Vill. were taken and our nearest heather must be at least 15 to 20 miles away. Two *Panolis flammea* Schf. and four *Ellopia fasciaria* L. visited the traps, and although Scots Pine is scarce in the district the Austrian Pine has been planted extensively. We are a good distance from any large outcrop of chalk, but one *O. punctaria* was taken on 2.ix.54.

Of moths already recorded in the Society's List the most interesting appears to be *Dicycla oo* L. Two were taken in one trap, three in another, and one in my own which I am pleased to say was a perfect ab. *renago*. The following, also taken, are listed as 'rare' or 'uncommon' in our district:—*Pyrrhia umbra* Hufn., *Drymonia ruficornis* Hufn., *Hadena w-latinum* Hufn., *Hadena conspersa* Schf., *Cucullia chamomillae* Schf., *Lithophane semibrunnea* Haw., *Agrochola macilenta* Hb., *Apatele leporina* L., *Cosmia pyralina* Schf., *Zenobia subtusa* Schf., *Plusia festucae* L., *Euphyia cuculata* Hufn., *Epione repandaria* Hufn., *Selenia tetralunaria* Hufn., *Apocheima hispidaria* Schf.—Clifford Craufurd, Denny, Galloway Road, Bishop's Stortford. 3.vi.55.

A Week in North Devon.—We travelled down on Saturday, 2nd July. The next day, Sunday, came in with a S.W. gale and much rain. On Monday, 4th, in the course of a walk in the afternoon a *Polia nebulosa* Hufn. with an exceptionally light ground colour was seen on a beech trunk. *Argynnis aglaia* L. was flying in good numbers and *Callophrys rubi* L. was still in fair condition. At light at night *Alcis repandata* L. ab. *conversaria* (fig. 8, pl. 134, in 'South') was taken and it also came on the 7th July. *Cleorodes lichenaria* Hufn. was taken at light on the 5th and again on 8th July. *Vanessa cardui* L. in very worn condition was seen many times and three male *Colias croceus* Four. were observed. *Pararge aegeria* L. was fairly common and on 8th July both *Satyrus semele* L. and *Melanargia galathea* L. were on the wing. One or two *Vanessa atalanta* L. were noted and *Aphantopus hyperantus* L. was emerging in good numbers.

At sugar on the 6th *Anaplectoides prasina* Schf. was taken in fair condition and all the usual species for the time of year appeared to be present. On the 7th *Thyatira batis* L., *Habrosyne pyritoides* Hufn. and *Mythimna turca* L. appeared. A battered *Deilephila elpenor* L. came to light. On the 8th *M. turca*, *Hadena conspersa* Schf., *Stauropus fagi* L., and *Atolmis rubricollis* L. were amongst about 36 species which visited sugar or light. On Saturday, 9th July, we returned home. North Devon, apart from the exceptionally rugged and fine coast scenery, is well worth an entomological visit.—Clifford Craufurd, Denny, Galloway Road, Bishop's Stortford. 12.vii.55.

News from Aviemore.—We came north in one day and arrived here at 7.40 p.m., in time for dinner. We have had eight days' fine weather without an appreciable amount of rain. The local people say that rain is badly required. The Spey is very low and the mountains very dry. *L. callunae* males are careering about in large numbers. We have been assembling them to a virgin female, and the black-headed gulls have been catching and eating the males. We have seen this even when we have not been assembling. *A. euphrosyne* and *A. selene* are out and yesterday I caught the first newly emerged *A. artaxerxes*. *P. plantaginis* is flying. Today I took *P. albulata* (15) and *P. blandiata* (4). *X. montanata* is common as usual but the dark markings are very light brown up here. *O. umbrifera* is flying but one or two *O. mucronata* are coming along. I got one *A. melanopa* (rather worn) on Friday on a mountain top and saw three mountain hares. I was also delighted to see a male *A. cardamines* on the same day. *E. caesiata* is coming out. At sugar the following have been seen:—*H. rectilinea*, *E. adusta*, *O. plecta*, *H. contigua*, *E. lucipara*, *C. pisi*, *A. menyanthidis*, *R. umbratica*, *D. oleracea*, *H. nana*, *L. comma*, *D. festiva*, *T. duplaris*, *D. rubi*, *A. crenata* (*rurea*), *L. varia*, *C. pusaria*. Not a very exciting list! The average number per night is only about 80 on 110 posts in all.

We have been up the Feshie, Tromie and Findhorn valleys. In Tromie we saw a wild cat hung up dead upon a birch stump. We have also seen wild deer and roedeer.

Some moths are early and some late. One *A. leporina* was found in the heather, but they have not come to sugar. For the first time in ten years I have seen crested tits.—CLIFFORD CRAUFURD (*in lit.*, 18.vi.55).

LATER:—Since I wrote to you very little more was taken at sugar. I got one *A. prasina*, several *D. brunnea*, *E. occulta*, etc. We took a series of *Perizoma albulata* and some *P. blandiata*. *O. atrata* was emerging in some numbers and *A. artaxerxes* were coming out. My companion took a *C. tullia*. I left the beating to my companion and he did not get anything beyond a few Geometrid larvae. I could not find any *E. versicolora* larvae by searching though they are generally common here.—IDEM., 29.vi.55.

STRYMONIDIA W-ALBUM KNOCH IN NORTH-WEST KENT.—I was interested to read Mr. Allen's note on the occurrence of this species at High Halstow, Kent (*Ent. Rec.*, **67**: 155). A well-known locality nearby is Chattenden where a colony has existed for a considerable time and presumably this is the reason for Frohawk (*Nat. Hist. Br. Butterflies*) using the generic name *Chattendenia* for *w-album*.

The insect is fairly widely distributed over N.W. Kent but is not always easy to find. It occurs along the North Downs at Shoreham and Eynsford, and further east at Ash, near Wrotham. In Newman's time it was common at Darenth, and though I have never seen it there in recent years it may well still exist. The countryside around Cobham seems well suited to it and if it is found here this would roughly link the colonies on the Hoo peninsula with those previously mentioned.—A. J. SHOWLER, 19 Harvel Crescent, Abbey Wood, London, S.E.2.

NOTES ON A HERTFORDSHIRE LIGHT-TRAP IN JUNE.—A count of *B. betularia* L. shows that 91·6 per cent of those taken to date are the form *carbonaria*. (The percentage of *carbonaria* for all 1954 was 86·6%). Several *H. w-latinum* Hufn. (*genistae* Bork.) came during the month; this species is usually regarded as uncommon in the district. *A. crenata* Hufn. (*rurea* Fab.) formerly common has been scarce of late: only a few came to the trap. *C. punctaria* L. was taken on 15th June—one of the few local records of this moth. *P. dolabraria* L. seems to be fairly common now (15 during the month) although scarce until recently.

Although there are few pines in the vicinity *T. obeliscata* Hb. is a fairly frequent visitor to the trap, and one specimen of *B. piniaria* L. was taken. This species has been recorded here very rarely as there are no pinewoods in the district. Odd specimens of *O. gothica* L. persisted into the early part of the month and one in fresh condition arrived so late as 21st June. The usual hawkmoths appeared, with the exception of *D. porcellus* L., *M. tiliae* L., *L. populi* L., *S. ocellata* L., *D. elpenor* L. and *S. ligustri* L. Two *E. bistortata* Göze came, and for the first time I have found one or two male *H. humuli* L. in the trap—normally only ♀♀ come to it. *C. pisi* L. has been plentiful and three *S. fagi* L., all males, were taken as well as a rarity in this district—*H. conspersa* Schiff. The most abundant moths during the month were *S. lubricipeda* L., *S. lutea* Hufn., *A. putris* L., *A. exclamationis* L. and *B. betularia* L.—G. H. B. Sell, 40 Maze Green Road, Bishop's Stortford, Herts. 5.vi.55.

Lepidoptera of the Faeroes.—The third volume of *Fróðskaparrit*, which contains scientific articles written in Faeroese with English summaries, includes an interesting article by Leif Dahl on the Lepidoptera from the Faeroes. As a result of the work of the author, and other collectors, the number of species of Lepidoptera on the Faeroese list has been increased from 32 known in 1926 to 46. The additional species found since the list published in *Zoology of the Faeroes* (N. L. Wolff) are as follows:—*V. io*, *V. urticae*, *A. atropos*, *H. convolvuli*, *R. ypsilon*, *T. meticulosa*, *C. clavipalpis*, *O. brumata*, *C. fluctuata*, *A. gularis*, *E. kuehniella*, *Acalla* sp., *E. solandriana*, and *A. tringipennella*.

There are illustrations of these and of other Faero species, and some interesting remarks on the form of *H. humuli* that is found on the islands.

Though the Faeroes are bare and windswept, there is more shelter there than in the Shetlands; there is a mixed plantation at Tórshavn, where many more gardens have trees and shrubs growing than in Lerwick. The same is true to a less extent of some of the other towns. More species of lepidoptera may well establish themselves in the Faeroes as the cover increases.—J. L. Campbell, Isle of Canna. 6.vi.55.

Escape of Exotic Colias Sp.—I have been rearing *Colias erate* ssp. *poliographus* (Motschulsky) during May and June of this year from eggs airmailed from Japan. Unfortunately on 22nd June a cat damaged the pairing cages, releasing five males and two white females. If anyone reports an unusually large species of *Colias*, somewhat resembling *C. hyale*, on the South Coast this may be the explanation.—F. V. L. Jarvis, 33 Greencourt Drive, Bognor Regis, Sussex. 22.vi.55.

A Further Note on the Mole-Cricket (Gryllotalpa).—Since the previous notes on this species were published in these pages (*vide* pp. 91-95) Dr. M. J. D. White has drawn my attention to the cytological problems connected with it. From the fairly extensive literature on the subject it is apparent that there are several distinct 'races' all passing under the name *G. gryllotalpa* but differing in the male diploid number [$2n$] of spermatogonial chromosomes. In the North European race (which should be taken as the typical one, although Linnaeus specified Europe generally—and N. America—as the habitat), $2n=12$; this race occurs in Northern Spain, Northern Italy, France, Belgium, and Germany for certain and probably elsewhere in Western Europe also. In the eastern race (Rumania and ? Turkey) $2n=14$. In the south Italian race $2n=15$ and in another from N. Italy it is 18. One race in Israel has $2n=19$ and another, known only from the shores of the Dead Sea, has $2n=23$ (incidentally the same number as in the Old World *G. africana* Beauv. and the New World *G. hexadactyla* Perty).

Of all these 'races' the last-mentioned is said to be morphologically different and therefore probably represents an undoubtedly distinct species, but Dr. White suggests in his book *Animal Cytology and Evolution* (Cambridge, 1954, 2nd ed., pp. 201-2, in which the relevant literature is fully cited), and I agree with his view, that the various 'races' probably all represent sibling species which could probably interbreed successfully in nature. Whether morphological differences may also be detected in a revision of the genus remains to be seen, but I see no season why they could not eventually be found. Dr. White (*in lit.*, 1955) is of the opinion that the British form belongs to the typical 'race' and is probably cytologically indistinguishable from Belgian material. One would like to be certain, however. Living, or properly fixed, material of *G. 'gryllotalpa'* from Britain (or from countries not noted above), therefore, would be most welcome.—D. K. McE. KEVAN, School of Agriculture, Sutton Bonington, Loughborough, Leics.

THE 'SOUTH LONDON'.—The South London Entomological and Natural History Society have removed from Burlington House, Piccadilly, to Pepys House, 14 Rochester Row, Westminster, London, S.W.1. Meetings will be held on the 2nd and 4th Thursdays in the month at 6 p.m. for 6.30 p.m. The entomological collections and library are once again available at all meetings.

The Annual Exhibition of the Amateur Entomologists' Society will be held on Saturday, 17th September 1955, from 2 p.m. to 5.30 p.m., at Buckingham Gate Central Schools, Wilfred Street, S.W.1. All interested in Entomology will be welcome.

Fifty Years Ago

(From *The Entomologist's Record* of 1905)

BAD NEWS FROM CANNOCK CHASE.—A thoroughly bad season has been that of 1904. Early spring insects such as *Asphalia flavicornis* and *Brephos parthenias* were scarcer than usual, and although *Callophrys rubi* and *Hadena glauca*, being commoner than I have seen them for some time, gave promise of better things, cold nights in June made sugar a total failure. On one night I got a few *Hadena glauca*, *H. contigua*, *H. adusta* and *Acronycta menyanthidis*, but for the rest of the season on no one night did I get more than three takeable insects. The long drought and abundance of honeydew in July and cold east winds in August being no doubt answerable . . . Autumnal larva-beating was a complete failure.—RICHARD FREER, M.D., Rugeley.

Leucoma v-nigrum in Essex.—Miss E. Miller of Chelmsford . . . has just sent to me . . . a ♂ specimen of *Arctornis l-nigrum* (*Laria v-nigra*) for determination. She noticed the resemblance, in many respects, to *Stilpnotia salicis*, but apart from the conspicuous black V (which might conceivably have been a varietal mark), she was observant enough to see that the antennae also differentiated it, and, not being acquainted with extra-British species, she was naturally at a loss to think what it could be. The specimen was taken at an electric lamp at Chelmsford, last July, and is in very fair condition, but not quite perfect, the left hindwing having a little slit in its margin. Whether it is more likely to have migrated voluntarily, or been introduced accidentally in an earlier stage, or whether anyone had been breeding the species in this country and let this specimen escape, I will not pretend to be able to decide; it is inconceivable that so conspicuous a species can have been a regular resident with us, unobserved, ever since the olden days when it was, or was believed to be, British.—L. B. Prout.

Splitting Up the 'Abs.'—I must strongly protest against the splitting up of the well-known aberration *Aplecta nebulosa* ab. *robsoni*. The ab. *thompsoni* of Arkle is at most simply a glorified form of ab. *robsoni* Collins, and, as such, has been known for years to all who have worked Delamere. It is not a new form, and does not require a varietal name. When will lepidopterists cease this absurd mania for subdividing aberrations? I might as well begin to coin names for about 200 *Boarmia repandata* ab. *conversaria* that I have, and which show a far greater divergence from the original ab. *conversaria* than does this ab. *thompsoni* from the original ab. *robsoni*.—Herbert Massey, Didsbury.

Predators of Nonagria typhae.—With reference to Mr. J. Ovenden's note on the wholesale destruction of pupae of *Nonagria typhae* by "mice or voles" in one spot near Strood last year, it may interest him and others to learn that great destruction of pupae of this species is carried on in a similar manner every season in a locality in this neighbourhood, where I discovered it about four years ago. Although I have before now heard the rasping noise made by the insect's foes when engaged in gnawing into the stems of the great reed-mace (*Typha latifolia*) in search of pupae, and have done my best to catch sight of them at work, I have not as yet succeeded, but am inclined to think that in this case the culprits are neither mice nor voles, but common brown rats, which infest the spot. Were it not that some of the *Typha* stems containing pupae are, no doubt, always surrounded by water, and therefore free from such attack, it seems to me that the insect would inevitably have been exterminated in the locality in question.—Eustace R. Bankes, Corfe Castle.

Obituary.

Henry William Andrews, who died at Highcliffe, Hampshire, on 9th April, was seventy-eight years' old. He was born on 9th November 1876 and educated at the Proprietary School, Blackheath. He retired from his employment as clerk to a well-known London Stock Exchange firm in 1945.

Like most entomologists, his early interest was in the Lepidoptera but in 1899, when 22, he turned to the Diptera, and met G. H. Verrall, then President of the Entomological Society of London, who was preparing his volumes on the British Diptera. Verrall induced him to join the Entomological Society and invited him to the annual supper of the Entomological Club, now known as the 'Verrall Supper'. Col. J. W. Yerbury was then amassing the large collection of British Diptera for the British Museum (Natural History) where Major E. E. Austen was in charge of the Diptera collections. P. H. Grimshaw and J. J. F. X. King were collecting the flies of Scotland, R. H. Meade was working at the Anthomyiidae in Yorkshire, and, in Birmingham, C. J. Wainwright and R. C. Bradley were enthusiastic collectors and students of flies.

Andrews collected steadily, attending regularly the meetings of the Entomological Society, where he occasionally had the opportunity of having a chat with Verrall, who was pleased to see his more interesting captures, which were later recorded in Verrall's volumes. F. C. Adams also helped Andrews with identifications and specimens. By attendance at the 'Verrall Suppers' which he continued for over 50 years, he met most of the dipterists of this century, exchanging information and specimens. In 1907 Andrews joined the South London Entomological and Natural History Society and later served on its Council, becoming President in 1929, delivering as his Presidential address a paper on 'The Earlier Stages of Diptera'. From 1930 to 1932 he was on the Council of the Entomological Society of London and in the latter year joined the Society for British Entomology, then known as the Entomological Society for the South of England.

In 1909, when interest in Diptera was increasing with the publication of Verrall's *British Flies*, two volumes, Andrews read his first paper to the 'South London', before an audience of lepidopterists, entitled 'Notes on the Diptera'. He dealt both with habits and morphology and showed he had read widely and aimed at persuading others to take an interest in flies. This and his subsequent papers read to this Society exhibited his enthusiasm for his chosen Order, his industry in the field and library, his courtesy and conscientious work, and his desire to tempt others to tackle the study of the neglected flies. In the 1914-1918 War he served in Egypt and Palestine and in the *Ent. Rec.* **29** of 1917 he wrote of his experiences. These may have influenced his choice for the subject of his next long paper on 'Flies and Disease' read in two parts to the 'South London' in 1924 and 1925, and still consulted by medical entomologists. It was in 1925 that his help for H. J. Turner in the management of the business side of this magazine was acknowledged by his appointment as 'Treasurer'. He continued this task until 1951 when for a few months he even took over its production following Turner's death and the succeeding editor's fatal illness. He knew when accepting the post that it would mean sacrificing much of his spare time and curtail his personal collecting and study of flies. However, he succeeded in interesting others, proven by his production of his first list of 'British Dipterological Literature' in the *Ent. Rec.* in 1931. This provided a quick guide for the beginner to the identification works available on our fauna. The following three parts brought the list up to date by 1949.

I first met Andrews after my first year's collecting, at the 1935 Verrall Supper and within a few days came a letter asking for a note on hover-flies at Bookham. Thus commenced my association with him and the journal. Over the past twenty years we exchanged news and specimens, checking each other's identifications in our favourite families, seeing one another occasionally at meetings of one or other Society and at each Verrall Supper. He stored his collections during the 1939-1945 War and though bombs damaged the upper part of his house his family and treasures escaped. He looked after the *Ent. Rec.* and kept up his correspondence with those of us 'on service' and with his older friends. With Dr. N. Blood he visited H. Audcent in 1943 at Clevedon. He managed to continue his special interest in Muscidae and more particularly in the Trypetidae, encouraged in his breeding of the latter by J. E. Collin, who contributed many systematic papers on this and related families to the *Ent. Rec.* and by M. Niblett, himself an accomplished expert on the breeding of this family. Several papers on distribution, habits and identification came from his pen in the early war years, mostly on the Trypetidae. He was particularly pleased with the reception given to his papers 'Wing Markings in Diptera' and 'Some External Aspects of the Bodies of Diptera' on their publication by the South London Society and a 'Suggested Nomenclature for the Wing-bands of Certain Trypetidae (Diptera)' in the *Ent. Rec.* **58** of 1946. They provoked thought and discussion, inspired further studies and remain a memorial to an earnest student who was ever ready to help others.

His retirement, so eagerly anticipated, but delayed until the war closed, gave him a chance to tidy up his collection and prepare for a move to the country with the opportunity for more field work. There were delays: the *Ent. Rec.* increasing in popularity brought more work, but he delighted in the papers from J. E. Collin and the chance to help a local entomologist who was turning to the Diptera. He was pleased to show his collections to Messrs. C. N. Colyer and C. O. Hammond when I took them to meet him after the war. He moved for a short while to Bognor Regis in 1947, then to Salisbury, and by July 1948 was at Fordingbridge and wrote of his delight in the woods, water-meadows and chalk downs in walking distance, where he made notable captures. In 1949 he visited St. Davids, Pembrokeshire, where he had spent his honeymoon some 30 years previously, and in August 1950 was at last able to move to his chosen home in retirement, in Highcliffe.

But at 74, he found the duties connected with the *Ent. Rec.* overwhelming. For close on 30 years he, a dipterist, had played an important part in the production of a magazine devoted chiefly to lepidopterists: an unselfish devotion to entomological progress acknowledged by all. Relieved of his duties, he continued his collecting but now with less energy than of old and gradually restricted this to his own garden and its immediate vicinity. In 1954 his condition had deteriorated and he had to go to hospital for treatment for high blood pressure and heart trouble. Later, however, Messrs. Collin and Fonseca, when visiting Hampshire, took Andrews by car for a day's collecting in the New Forest, which he greatly enjoyed. It was his last great day in the field. By now, he admitted to 'feeling old' and finally found his rest in April this year.

Completely unselfish, a conscientious, reliable worker and friend, he was an example of the amateur anxious to see others joining in his hobby and interests. He was all too modest in his abilities and admitted to being awed by the many Fellows of the Royal Entomological Society who had travelled and collected all over the world. He preferred the amateur collector atmosphere of the 'South London' despite the absence of fellow dipterists. A kindly soul, he will be mourned by his many friends who extend their sincere sympathy to his wife, son and two daughters and their families whom he has left behind. By his wish, his collections are to be given to the South London Entomological and Natural History Society who on 11th November 1953 had elected him an Honorary Member "in recognition of his long association with and service to the Society".

L. P.

We regret to announce the passing of yet another good entomologist and staunch supporter of this magazine, Mr. George B. Manly, who died at Birmingham on 7th July, after several weeks' illness, at the age of 77. His daughter, Miss G. Manly, writes: "Please convey to any readers of the *Record* who have in any way helped my father to enjoy his great hobby our thanks for giving him happiness".

* * *

EXCHANGES AND WANTS

Wanted.—Scarabaeidae from all parts of the world. Also literature dealing with this subfamily.—*589321 Sgt. Rogers, Sergeants' Mess, R.A.F., Yatesbury Calne, Wiltshire.*

Wanted.—Larvae of *Agrotis segetum*, *Euxoa nigricans* and *Triphaena pronuba* for experimental work. Please report to *D. K. McE. Kevan, School of Agriculture, Sutton Bonington, Loughborough, Leics.*

Wanted.—Living female pupae of *Saturnia pavonia* or any other large female pupa (*Laothoe populi*, *Smerinthus ocellata*, etc.) for work on assembling scents. Cash or exchange.—*Dr. H. B. D. Kettlewell, Genetics Laboratory, Department of Zoology, University Museum, Oxford.*

Wanted.—Distribution records in Great Britain and Ireland (especially Ireland) of *Erebia epiphron* Knoch (Small Mountain Ringlet). Localities will be kept secret if so desired.—*Dr. J. F. D. Frazer, Stone House, Boxley, Maidstone, Kent.*

Wanted.—Old insect sale catalogues pre 1952. Also early Bulletins of the Amateur Entomologist's Society. Exchange for other books or cash.—*L. Christie 137 Gleneldon Road, Streatham, London, S.W.16.*

Wanted.—Lepidoptera of North West Surrey. I am preparing an account of the distribution of Macro-lepidoptera and Pyralidina in Surrey, north and west of the line Weybridge, Woking, Worplesdon, Normandy, Ash Vale (inclusive). Records with full data would be welcome, even of common species: Pyrales and Plume Moths particularly needed.—*R. F. Bretherton, Ottershaw Cottage, Ottershaw, Chertsey, Surrey.*

Wanted.—Practical Handbook of British Beetles; 2 Vols.; 1932, by N. H. Joy. Quote price to *Clifford Craufurd, "Denny", Galloway Road, Bishop's Stortford, Herts.*

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Collecting Notes, 1955

By W. Reid.

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5th July. We are now half way through a year which, on present indication, has every appearance of being a poor one for those of us who are interested in collecting. Yet there have been one or two bright spots in Sheffield. The number of moths in the trap in my garden during, and just prior to, the Easter holidays was certainly a record for the time of the year so far as records for Sheffield go. Numbers up to 350 and 450 per night were noted, all commoners, and by far the majority were *Orthosia gothica* L. I have never before seen so many at one time, and all were type. *Orthosia incerta* Hufn. was also plentiful, in many forms, and both these species continued to be present in the trap up to the middle of June. *Orthosia gracilis* Schf. was not so abundant as usual, probably because it has a later emergence and the weather had deteriorated when it was due. But emergences, for the most part, have been three to four weeks later than last year. *Apatele alni* L. did not arrive this year until 27th June, when four quite fresh specimens appeared in the trap with two more the next day. The temperature on the night of 26th June did not drop below 59° F., the highest night temperature this year so far. *A. alni* only seems to appear when the temperature is fairly high and, as a result, its appearance in the trap in Sheffield is usually restricted to one or two nights each year. Its near relative *Apatele psi* L. is usually fairly common, but only two specimens have turned up so far.

I had an interesting night at Witherslack on the 14th April in company with Dr. Birkett. *Gypsitea leucographa* Schf. seemed to be quite common this year at the car headlights, but only one turned up at the m.v. lamp, in another place about a mile away. Probably the locality, although in the same overall area, was not so good, but my experience with this moth leads me to believe that it comes more freely to car headlights than to the m.v. lamp. Quite a number of *Nothopteryx polycommata* Schf. were taken on ash trunks—only one came to the m.v. lamp on the sheet, in the middle of its breeding locality. A very nicely lined *Orthosia munda* Schf. was taken together with some pink *incerta*. At this time, emergences seemed to be normal in date.

My wife and I spent five days at Aviemore in mid May, when I encountered my usual cold weather. Snow, sleet and frost made collecting well nigh impossible, and very few insects came to the trap in the hotel garden. A male *Endromis versicolora* L. in the trap on 12th May was the only specimen of this species seen. A few *Anarta cordigera* Thun. were taken on rocks on Granish Moor and near Newtonmore, but little else was seen, even in the daytime.

From 21st June I spent a few days at Barton Mills. I particularly wanted to take *Anepia irregularis* Hufn. before it becomes extinct in the area, a result which, I fear, may not be long delayed. In spite of daily searching in many likely places for the food plant none was discovered, and very little remains in the place I was advised to visit. It may also be that the *Silene otites* is so thinned out by agriculture in the first place, and perhaps by being taken for food for larvae, that the remaining plants are unable to support a colony of the moth. Be that as it may, the fact remains that only two of the insects were seen round the small area in which the plant occurs, in spite of three quite warm and damp collecting nights. Both moths were taken at dusk amongst the campions, none coming to the m.v. lamp about 60 yards away. As I am not very adept at dusking, there were probably more of the species about than there appeared to be by the numbers netted, but I had no difficulty in taking *Leucania pallens* L., *Hadena cucubali* Schf. and *Hadena conspersa* Schf. in the same small area, and *irregularis* is more easily seen than either of the latter two species. It was interesting to see two *Lophopteryx cucullina* Schf., one *Hyloicus pinastri* L. and one *Scopula rubiginata* Hufn. at the m.v. light, together with many *Heliophobus anceps* Schf.

Two visits were made to Wicken Fen at night, and no great difficulty was experienced in getting the m.v. light well into the Fen. On neither night was the weather good for insects, with clear skies and low temperatures, but nevertheless moths did come in. The most common was the reed leopard, all of which were quite fresh. Next in quantity came *Meliana flammea* Curt., mostly very worn, with a few *Chilodes maritima* Tausch. and three fresh *Leucania obsoleta* Hb. *Earias clorana* L. was also on the sheet on each night, but I was most interested to take three very fresh and very dark *Tethea ocularis* L., much darker than any I have taken in the south or in the Sheffield district. Is this dark form a special of Wicken? No *Hydrillula palustris* Hb. were seen but three fresh *Simyra albovenosa* Göze were also taken. *Lithostege griseata* Schf. was fairly common near Barton Mills, but was definitely past its best, and several *Diacrisia sannio* L. were taken flying over waste ground during the daytime. Butterflies of all description were extremely scarce.

18th July. This recent warm spell of July has brought moths out in some quantity. A newcomer to the light in the garden was *Apamea characterea* Hb. on the 12th July. Mr. Fearnehough of Dronfield took three of this species at sugar in July seven years ago in a wood near his home, and ever since I have been trying my luck with the m.v. lamp in the same neighbourhood. Unfortunately the wood has been ruined by opencast coalmining, and I have never succeeded in taking it. I was using the light in an adjacent wood on the same night as the moth came to the trap in the garden, where I found it the next morning. All the specimens I have seen are of the dark form; they are nothing like the colour of the illustrations in 'South', which are distinctly reddish. The local specimen can best be described as being very deep brown with an olive tinge, and the black markings just discernible, the light colour being restricted to a very small area at the base of the anterior wings. Its appearance in the trap raises the question as to whether I brought it back with me from the wood. It was certainly not on the sheet, and all my gear, including my coat, was packed into the boot of the car before I left the wood, and the boot was not opened until after I had examined the trap the next morning, the insects which I had taken in the wood remaining in their boxes all night. *Ocularis* has turned up in greater numbers than usual. Twelve have appeared in the trap—previously only single ones, and then only three in six years. Another *alni* turned up on the 13th July, and after this date *psi* was really common.

(*To be continued.*)

Collecting Notes from a short holiday in Wester Ross

By R. P. Demuth.

Many years ago I made a bicycle tour of the north west coast of Scotland and I was struck by the beauty and the collecting potential of the woods along the south west shore of Loch Maree in Wester Ross. This year my wife and I motored up there taking with us our portable M.V. light and arrived at the Loch Maree Hotel on May 9th. We had five nights collecting which coincided with the filthiest spell of bad weather which I have ever experienced at this date. Generally May in the Western Highlands is a fine and lovely month, but during the period of our visit we had an icy north easterly wind, torrential rain or hail and at night sufficient snow to lie quite deep on the hills. On two of the five nights, no insect of any description, moth, fly or midge came to our sheet and the combined total on the others could not have exceeded 80 moths. I am therefore almost as ignorant of the fauna of these woods as I was before I started.

Insects noted were *Odontosia carmelita* (one ♂) which only measured 38 mm. against an average of 42 mm. of a short series of males from Aviemore; *A. menyanthidis, M. glauca, P. piniperda* and *T. gracilis* of the creamy salmon coloured form originally associated with Struan. There were also a few ragged *T. gothica* and *T. incerta.*

In spite of the weather, the spring larvae were feeding as usual and from sweet gale, heather and to a lesser extent sallow and birch and other low growing plants in the woods we collected larvae of *T. comes* in quantity, and *A. agathina, N. xanthographa, N. brunnea, N. castanea, N. primulae* and *A. lutulenta* in lesser numbers. The *T. comes* have emerged as var. *curtisii* and var. *rufa* and others with the fore wings suffused with pink or plum; the *N. brunnea* were of a rich, warm brown.

I was surprised to find the woodland area at the southern end of the loch to be a Nature Reserve with an unpronounceable Gaelic name. Large notices proclaimed this fact and banned caravans and all collecting without a permit to be obtained from an address in Edinburgh. In the last issue of the *Entomologists' Gazette* the Editor criticises the Conservancy and their Advisory Committee for their attitude to portable generators in Woodwalton Fen. I would carry this criticism much further. By all means let the Conservancy gain the control of the area and preserve its ecology from those triple foes of the indigenous fauna, the Forestry Commission, the builder and the farmer of marginal land, but why put up notices in these lovely lonely places, why require permits to collect in them (what earthly harm can an entomologist do to the fauna of thousands of acres of wood, moor and mountain?) and if they must have permits, why have to write to Edinburgh instead of getting them from some local man? There is no means of enforcement and anyone with malicious intent, and I doubt if such people now exist, could so easily do any damage he wished, permit or no.

This permit business is nonsense. Years ago I climbed the higher Cairngorm summits and dug up the pupae of *A. alpina.* Now I am told I should need a permit to scratch a few square yards of moss on square miles of mountain side! I always thought that collecting at Wicken and Woodwalton was rather like shooting tigers at Whipsnade Zoo and as more and more of our best collecting grounds become Nature Reserves I see the future which our chairborne naturalists have in store for their field brethren. I see myself setting out for a week's collecting with a sheaf of permits printed on dirty yellow government paper. I see this sort of conversation. "What, collecting in the New Forest with old X! I thought you couldn't stand him?" "No, I can't, but he is in with the Boys and has a sugaring permit endorsed for five *sponsa*!" I see even further. I see the British Lepidoptera (Prohibition of Collecting) Act, 1965. I see the end of a delightful hobby.

Let the Nature Conservancy preserve the general ecology and leave the insects and the entomologists to look after themselves. In only very rare instances have the latter done any serious damage to the former.

Some Observations on *Papilio machaon* L.

By H. Symes, M.A.

This summer has seen the fulfilment of a wish that I had cherished for at least thirty-five years, namely to see and take the Swallow-tail butterfly in its native haunts. Only once had I ever seen it alive, hovering over orange blossom on the high ground overlooking Syracuse. It was a lovely sight, and though it was many years ago I have never forgotten it. But what a contrast between the limestone uplands of Sicily and the fens of Norfolk!

The first time I saw a British *machaon* alive was on 13th June 1955. It was late in the afternoon, between 5.30 and 6, and it had been rather a dull day. I was walking along a causeway across a fen when I heard a rustling in the long grass at my feet and up came a *machaon*. It flew to a clump of ragged robin (*Lychnis flos-cuculi*) and settled on a flower. I was so startled that I forgot that I had a small net folded up in my pocket, with which I could easily have caught it. The insect was tame, but not tame enough to be boxed. After visiting a second clump of ragged robin it sailed away over the dyke and was lost to view.

I do not know whether ragged robin is particularly attractive to *machaon*, but in the next few days I saw four more settling on it and none on any other kind of flower. The sight of such a large butterfly hanging from such a fragile flower reminded me of the queen of the fairies swinging on a cobweb in 'Iolanthe'.

It was hard work netting four *machaon* (none of which was in perfect condition) and it involved floundering about in an inch or two of water and forcing one's way through saw-edged rushes that were often neck high, persecuted all the time by very persistent and apparently thirsty horse-flies. Searching the foodplant (*Peucedanum palustre*) for eggs was much more rewarding and yielded a harvest of twenty-two at the cost of much less exertion.

Some of the authorities make very misleading statements about these eggs. Scorer, for instance, says they are laid on the *under* side of leaves in *batches* of one dozen or fewer. This assertion would seem to be derived from Tutt (*Practical Hints*, II, p. 98), where it is said "the eggs, from one to a dozen, are usually laid on the underside of a leaf".

As to the number of eggs on a leaf, Frohawk says "each female only deposits one egg on a plant at the same time. Sometimes as many as five or six eggs may be found on the same leaf, usually all of different ages, denoting that they have been deposited by separate females". Hence, no doubt, the idea of eggs being laid in batches of a dozen. Frohawk goes on to say that one day he found about three dozen eggs laid singly on the under surface of the leaves of *Peucedanum palustre*. But at least half of the eggs I found were laid on the *upper* side of a leaflet, where, when freshly laid and still of a pale yellow colour, they were quite conspicuous. In two cases I found two eggs within half an inch of each other: the remainder were all on separate plants.

Then, as to the colour of the egg. Buckler says it is greenish yellow, quickly turning *green*, and soon after tinged with violet brownish gradually deepening to purplish. Frohawk says it is pale yellow when first laid, and after a week it is zoned or blotched with warm coppery brown. This only goes to show how different writers will vary in their description of the same colours. I never saw any of my eggs turn green; if they did it must have been for a short time during the night, when they were not under observation. One of the eggs I found had already turned brown, and was very hard to see: the rest were pale yellow and changed to brown after a few days.

One point more. Buckler says "the larvae in every case ate their empty shell". Frohawk says "directly after emergence, the larva eats a large portion of the shell". Some of my larvae ate the whole of their egg shell, some ate part of it, but three, ignoring the procedure laid down for them by Buckler and Frohawk, left it severely alone and did not appear to suffer any ill effects from this, as would have been the case with larvae of *Stauropus fagi* L.

The first of my eggs to hatch did so on 20th June, and the first imago emerged on 1st August, exactly six weeks later. Of this period, twenty-seven days were spent in the larval stage and fifteen as a pupa. Thirteen more eggs had hatched by 23rd June, and fourteen larvae had pupated by 20th July. These larvae had a life shorter by about a week than those of which details are given by Buckler and Frohawk. Buckler says the fourth moult comes on the 20th to the 23rd day after hatching, and after this the larva feeds on for ten or twelve days, making very rapid growth. Frohawk's larvae had their fourth moult about twenty-four days after hatching.

Of my twenty-two eggs nineteen eventually hatched. The larvae were fed on fennel (*Foeniculum vulgare*), and throve on the diet. Except in their early stages their method of tackling the hair-like leaves of fennel resembled that of the larva of *Hyloicus pinastri* L. dealing with a pine needle: they started at the tip and nibbled rapidly down to the base. In their last instar they often ate the stems of the fennel. After a change of skin the larvae nearly always ate the old one, but in a few cases failed to do so, without apparently being any the worse for the omission. The dates on which the first larva moulted were 25th June, 30th June, 5th July, and 9th July. Two larvae were full-fed on 15th July and pupated on 17th July. One larva died in the first instar and another in the third: it is possible, of course, that they had not eaten their egg shell and/or old skin. Sixteen larvae had pupated by 24th July: one, though not noticeably behind two of the others at the time of its last moult, was not full-fed until 11th August. It failed to pupate.

I noticed that the larvae did not often extrude their osmaterium, even when disturbed by the renewal of their food supply, but when they did so the strong smell, said to resemble that of rotten pineapples (with which I am not familiar), was much in evidence. To prevent interference with a larva that was preparing to pupate I found it inadvisable to keep more than four or five in a good-sized cage when they were in their final instar. Although supplied with pieces of dried reed stems and sticks, with one exception they chose to pupate on the side or top of a breeding-cage: seven adopted a vertical position, which we are told is the normal one in nature, and eight a horizontal position. The pupae were the colour of the two pictured at the bottom of Plate I in 'South': none was of the green form.

Two imagines emerged on 1st August and six more by 5th August: there were two males and six females. Emergence from the pupa took place in the afternoon, not later than six p.m. B.S.T. Seven of these butterflies came from pupae in the horizontal position and one from a vertical pupa. There may be some significance in this. The only inference I can draw is that it is less important for a pupa that is to produce a second brood imago to occupy the normal upright position than for one that is to go through the winter. The choice of position is, of course, made by the larva. Can it possibly have some instinctive feeling that it is to produce a second brood imago, and at what stage in the insect's life is this determined? The fact that 50% of my pupae produced imagines of the second brood, a much higher proportion, I should think, than normal, is naturally to be attributed to the fine, hot weather during July.

Since visiting the Broads I have been informed that *P. machaon* became extremely scarce there a few years ago and that there was even fear of its extinction. The situation this year seems to have improved. During two and a half days spent in a very limited area of fen the Rev. F. M. B. Carr and I must have seen about two dozen specimens flying over the reeds. I also saw one flying along the roadside about half a mile from the nearest fen, and two flew past my car where it was parked, making their way towards a village.

Should such a large proportion of second brood imagines have emerged in the fens as in my breeding-cages, and aided by the favourable weather have paired and eventually produced a number of pupae to reinforce those of the earlier brood that were to go over the winter, this should go some way towards rehabilitating *machaon* in its last stronghold in England. Long may it flourish there.

ERRATA.—Page 211, line 10. The comma between *D. porcellus* L. and *M. tiliae* L. should be a dash.

—Page 212, line 16. *For* 'could probably interbreed' *read* 'could probably not interbreed'.

An Entomologist in Argentina

XIV. Mendoza

By Kenneth J. Hayward, D.Sc. (Hons.), F.R.E.S.

When I arrived back in Buenos Aires after our trip to Bahia Blanca and the Río Negro Valley and Neuquén at the end of 1946, I found that owing to the summer exodus to the Córdoba Hills, then at its height, I should have to wait for a considerable time before it would be possible to obtain either a seat or bed in any train for Tucumán. Not being prepared to make a journey of nearly thirty hours, standing in a crowded train, I asked for permission to cross over to Mendoza and collect there for a month before returning to Tucumán through the western provinces.

The six hundred and fifty mile journey from Buenos Aires to Mendoza is not of very great interest, the railway crossing the level central plains of Argentina which are mostly devoted to agriculture; only in the province of San Luís, shortly before reaching Mendoza, is the monotony relieved by the sight of low sierras.

Although I had no personal experience of the effect of locusts on railway traffic, I had read of trains being held up by dense swarms covering the tracks, and once in Concordia I had noticed a goods train preceded by men who armed with palm branches were shooing the flying locusts from the rails. Now I was to see for myself the problem created for the authorities when dense swarms settle athwart their lines. Our train was a light one consisting only of ten pullman coaches, a diner and a guard's van and was drawn by a powerful locomotive, a second being added as we approached the district where the swarm, that covered some hundreds of square miles, was located, and yet another when we neared its centre where the insects were thickest. Even with these three engines we were unable to move at more than a walking pace and were frequently brought to a standstill when the wheels failed to find a grip on the slimy mass of crushed hoppers. Each time this happened we had to wait whilst gangers stationed here for that purpose cleared the track ahead for a short distance to enable the locomotives to obtain a fresh start. In consequence we reached our destination several hours late.

The province of Mendoza lies in the shadow of the cordillera and is the centre of one of the important wine producing zones of the country. It is rather more than five times as large as Belgium and may be divided roughly into two parts, the western mountainous, the remainder consisting, as does most of the territory abutting on the eastern slopes of the Andes, of fairly level scrub-covered waste, fertile wherever water is available for irrigation.

Amongst the mountains there are many small well watered valleys, often with their individual micro-climate, and these are always interesting to a naturalist who will explore them, even if eventually nothing much is found, with that feeling of anticipation that to my mind is one of the greatest joys of collecting in strange places.

This was not my first visit to Mendoza. I had stayed there as a member of the Second Congress of Natural Sciences in April of 1937, but on this occasion our collecting was confined to a few odd moments between meetings or when we were taken for excursions. On only one occasion was it possible to do any serious work, when with Mr. Lizer y Trelles, who is our specialist in scale insects, and Mr. Köhler, another colleague from the Ministry of Agriculture, we seized an opportunity one morning of exploring the mountainside near Caucete, from which locality Eugenio Autran had at the beginning of the century recorded a number of scale insects that had not subsequently been found in Argentina. When we assembled for lunch, eight of these had been rediscovered.

Mendoza itself is a large city, closely surrounded by a number of smaller towns which have now become linked up by ribbon building so that it is necessary to go far afield to find suitable collecting areas. With Dr. Willink I explored many nearby places where there were still small patches of uncultivated land, but the results were not encouraging; these spots had become too urbanised for the liking of all but a few of the commonest species.

Twice we went back into the mountains to collect at Potrerillos, a village situated at about four thousand feet. The first occasion was a short visit when we spent an afternoon collecting along the roadside, and after a lot of hard and very dusty work managed to obtain a fair number of specimens, mostly small insects. Our second visit was more protracted and extended to two days which we spent exploring the vicinity of the river Mendoza, only here a considerable stream with wide, low, scrub and weed covered verges and approached by several small leafy lanes in one of which I saw wild roses in flower for the first time in Argentina. This area looked extremely promising, but in the end it hardly came up to our expectations though we caught rather more than two thousand insects in all. These were mostly small bees and wasps and in one of the lanes I secured a good series of an interesting lacewing bug. Had I at the time realised that amongst the butterflies I had collected I was later to find a halved gynandromorph of *Neomaenas edmondsii thione*, I should no doubt have felt more contented with the results of our stay. This specimen lay unnoticed in our collections till last year when I came to study the species for a monograph on the Argentine satyrids and is the only gynandrous example of this family that I have so far seen.

One afternoon we visited Lavalle that lies on the plains to the north of the city, mainly with the idea of searching for three species of large buprestids that Dr. Willink had previously located in this area. Altogether we found ninety, most of which were obtained by my colleague as I am afraid I rather tended to wander about in search of other insects and in consequence fell between two stools.

Undoubtedly the most interesting and most productive of our expeditions was that which we made to Uspallata, a small town that lies astride the international road at an altitude of nearly six thousand feet and about half-way between Mendoza and the frontier.

Leaving the city the road to Chile runs in a monotonous straight line for nearly thirty miles towards the mountains, traversing a barren rising plain, but as it nears the thermal springs of Villavicencio a new, steeply ascending zig-zag carries the west-bound traffic to the ten thousand foot plateau of the Paramillo where the old road is again joined. The descent towards Mendoza is made along the latter which passes through the Quebrada del Toro, a deep gorge somewhat reminiscent of Cheddar, the enclosing cliffs at times but a few yards apart, the corners often blind.

Just before reaching Villavicencio there is a small monument by the side of the road commemorating the visit to this region of Charles Darwin during the cruise of the *Beagle*, and it was close by that he encountered the fossil remains of coniferous trees (probably *Araucaria*) that he mentions in the account of his travels. From the Paramillo one obtains a magnificent view of the whole of the Uspallata valley, backed by the high Andes, here dominated to the north by the twenty-three thousand feet of Aconcagua, third highest of the Andine peaks, to the south by the slightly lower Tupungato. As I stood that January morning looking down on the vast panorama lying at my feet, I wondered whether perhaps from this same spot on a January day of 1817, San Martin had gazed in contemplation at his army of liberation as it wound its way slowly upwards through the valley towards the passes and the freeing of Chile from the yoke of Spain.

At Uspallata we found accommodation in an old building that had been in turn estancia house and hotel and now contained a small restaurant where travellers between the two countries could get a meal. There was a large garden at the back that had for some time been completely abandoned and was overrun with weeds. Here we found quantities of currants and gooseberries, fruits I had not seen since I left England, for the climate of the more northerly parts of Argentina does not favour their growth, and there were brambles laden with blackberries. The flowers for years left unattended had seeded themselves and run riot everywhere and were a constant attraction to butterflies and bees.

On our first outing we found what was to prove the only really good collecting ground anywhere near at hand. This was a long shallow depression a few hundred yards further down the road, covered with clumps of *Stipa* sawgrass interspersed with weeds and bushes and through which wandered a small marshy stream. Almost as soon as we had started out, a strong wind got up which filled the air with dust and made it extremely difficult to collect amongst the wildly waving grasses. There was, however, a small brown lycaenid butterfly that flew low down amongst the scattered clumps of *Stipa* and as it looked to me like a new species of *Itylos* and was in perfect condition, I concentrated my efforts on taking as many as possible, in all nearly a hundred. It has been identified as *moza*, a species which I have since taken in the mountains behind Tucumán at altitudes between ten and eleven thousand feet, but these latter are smaller, darker and with a more variegated underside and may perhaps be a separate race. This is not the only occasion that high altitude Bolivian butterflies have been found as far south as Mendoza, and in one or two cases it has been possible to locate the species in question at intermediate places along the cordillera.

One afternoon when collecting in some fields where alfalfa had once been grown, I came across a number of our common clouded yellow, *Colias lesbia*. Having nothing much better to do I started to look these over after taking a couple of pairs of normal specimens for the record. I found no aberrations but caught many dwarf specimens of between

26-30 mm. or rather less than three-quarters the normal span. The result of course of this collecting is that our series of *lesbia* from Uspallata contains a high percentage of very small specimens, a fact liable to mislead anyone studying this species from the material in our collection. I mention this as I have a case in mind where an author has been so misled under similar circumstances.

I think about the only other insects of much interest which we collected in any quantity were large numbers of chrysomelid beetles which we found living gregariously in the plumes of a pampas grass (*Cortaderia*). These were very variable in colour and design and appeared to represent two separate species but I believe there is really only one. They have been described as *Diabrotica reimoseri* and *D. melanoptera*, one of which names will probably have to fall when more is known about their early stages.

When we left Uspallata to return, our bus stopped for a short time in one of the wildest parts of the Quebrada del Toro, and I had the pleasure of seeing the silver satyrid (*Argyrophorus argenteus*), but as my nets were packed I was frustrated in my efforts to catch one.

My memories of that trip to Mendoza are of endless miles of level vineyards beneath blue cloudless sunny skies, their vines a light cerulean from the copper sulphate sprays and the thin bloom of dust that covers everything, vineyards dotted with white houses and reaching out into the distance till their colours mingle with the darker blue of mountains.

Memories of a Naturalist—II

By MALCOLM BURR, D.Sc.

In September 1892 I was promoted to Radley, where I did not succeed in securing an entrance scholarship and so passed into the Remove. Radley is a beautiful school and I have always been proud to have been there. My career was not particularly distinguished. I won a few prizes for boxing and fencing, got into the Cricket XI and the VIth Form and was a prefect. Several of my contemporaries afterwards gained distinction, among them the Reverend F. J. Stone, who later became King's Chaplain at Windsor. His nickname was 'The Bone' and in later years it was said that once Princess Margaret addressed him as "Mr. Bone". Many have wondered what was the origin of this queer sobriquet and I think I am the only person who can explain it.

At one of our annual entertainments Mr. Stone was one of a trio of Dons, as we called the masters, who sang in that old school comic anthem "Multiplication is Vexation". When his turn came to come in with "Division is just as Bad" he uttered it in the most lugubrious voice imaginable, fixing his eyes in a solemn glare into space. The patch of hair in the middle of his brow seemed to recede further and further back until in the stage lighting it seemed to fade away. He assumed the appearance of a veritable hobgoblin. It was exceedingly well done and very entertaining.

"It makes him look just like a bogey" someone said to me, and from that day he was often alluded to as 'Bogey Stone', which was readily spoonerised into 'Stogey Bone'. The first half was eventually dropped and forgotten, and so he became 'The Bone'. His younger brother joined the staff after my time and Mr. Bryan, a senior master, dubbed them 'Glad Stone' and 'Sad Stone'.

My unofficial recreation in those days was climbing trees and I had a fine time in the grand old timber in the park. One afternoon I climbed to the top of all three of the great elms, Nos. One, Two and Three, of which we were very proud. Our greatest climber was C. H. Stigand, who afterwards became a big game hunter, author of several books on Africa and, after a distinguished military career, was killed in an action with tribesmen in 1919.

Collecting insects was a great pleasure, especially as we had access to Radley Wood which, though smaller, was nearly as good as the more famous Bagley Wood adjoining, which is so jealously protected by its owners, St. John's College. Here we used to find several of the rarer butterflies, such as the Duke of Burgundy fritillary and the Marbled White, which till then I had thought was restricted in our country to the New Forest.

In 1896 I decided that too many people were working at butterflies and moths and also at beetles, and I determined to choose a less hackneyed line. My choice fell upon the Orthoptera, that is to say the group that includes the grasshoppers and crickets, and also the rather less attractive cockroaches and earwigs, but all well worth studying. Among the former there are some delightful fellows, and in those days they were little known and there was scope for original work.

Without delay I entered into correspondence with Professor Poulton at Oxford and thus laid the foundation for a friendship for life, and to him I was indebted for much encouragement and numerous kindnesses. He was the first person to be knighted for services to the science of Entomology.

Bereavement came to me early. My brother Ray came of age in September 1894 and was taken ill immediately afterwards. Before he had recovered his strength he was attacked by typhoid, which he was unable to resist.

Immediately after the tragedy my father took my mother and me for a change of air and scene. We passed a few weeks at Nice and went on to spend Christmas in Rome, where the antiquities were particularly impressive to a schoolboy. An icy wind was blowing down from the Apennines and we thought Rome the coldest place we had ever been in. One scene remains fixed in my memory. It was the cloister of a picturesque old monastery, enclosing a small, romantic garden. Here for the first time I saw real live monks. I had not realised that there were still such men in existence, as I thought vaguely that they had been extinct since the time of Henry VIII! At the same time I saw also for the first time oranges growing on trees. The laughing monks had ladders up them and were picking the golden fruit and throwing it down to their comrades below, who stacked them in big baskets. It all seemed so beautiful and unfamiliar, the strangeness being enhanced by the fact that the trees were covered with snow.

We stopped at the Grand Hotel, then recently opened by Ritz. That capable little Alsatian, whose name has become so strangely famous, revolutionized the hotel business with his innovations. When in London my father had always stopped at the Savoy, which was the first hotel in London on modern lines, and here we learnt to know the dapper little man well. He was delighted because Italian society had taken kindly to his innovation, and even the haughty and reserved aristocracy had so far broken with tradition as to dine out in his restaurant.

There is an anecdote of Ritz that illustrates the quickness of his brain. When his new hotel in Paris was first being talked about in the capitals of Europe the Prince of Wales (later King Edward VII) announced his intention of paying it a visit. Ritz, wearing an enormous buttonhole and carrying a huge bouquet, met his royal guest upon the platform, with many bows and a sweep of his very curly brimmed top hat.

''Ah, Monsieur Ritz'', said the Prince genially, ''le roi des hoteliers!''

Instantly Ritz replied: ''C'est Votre Altesse Royale qui me permet d'etre l'hotelier des rois!''

He owned or controlled a network of hotels over the greater part of western Europe, and an open letter of introduction to the hotel-keepers of the Continent which he gave my father acted as a passport to their favour from Rome to Stockholm. Under his aegis we did of course the routine trip to Switzerland, where I felt the charm of Lucerne, Interlaken and the Lake Leman; but I found the country too artificialized and much preferred the more primitive, but very comfortable, alpine resort of Ritz on Mt. Revard, above Aix-les-Bains, where we spent a few glorious weeks one September. It was wonderful country and I revelled in the brilliant and extraordinary grasshoppers, especially the big black and yellow ones that churred as they flew and the black ones with crimson wings that flew from under one's feet, flashed to dazzle the eyes, and vanished again as soon as they settled and closed their wings. These finally confirmed me in my intention to make a serious study of the Orthoptera.

I soon discovered, to my astonishment, that there was no book dealing with the grasshoppers of England, so I set to work to write one. That was in 1896 and it was published in the following year. No doubt it was a boyish and premature effort, but it served its purpose for it was the only book on the subject until the appearance of Lucas's elaborate work eighteen years later.

It was an ambition of mine to join the Entomological Society. Dr. Roose, a friend who knew everybody, introduced me to the Secretary, Herbert Goss, who saw to it that I was duly proposed and seconded. While my election was pending the Council received a letter of protest from a Fellow against my election on the grounds that the ''admission of schoolboys and lads of tender age'' would lower the prestige of the Society. As the writer was a lawyer, he reminded the Council that I was technically still an infant and so could not be sued for my subscription. The Council did not like the tone of the letter and sent it on to me, excising the name and address of the writer. That was useless, for of the identity there could be no doubt. The only Fellow who had ever heard of me was a solicitor who had given me encouragement when I was a little boy. In those days he had been a business friend of my father, but since then there had been acute differences between them, and the letter produced the impression of a cowardly attempt to hurt my father through his boy. But the Council preferred to encourage an enthusiastic youngster and before long I was proud to have the right to inscribe the magic letters F.E.S. after my name. Directly I received the notice of my election my father gave me a cheque to send for my life composition. As I was only sixteen at the time this was a magnificent investment of £15.

That summer we struck out in a rather more original line of tour and went to Sweden. We landed at Göteborg and proceeded overland by water to the capital. That sounds a contradiction, but the system of canals and great lakes makes possible a considerable amount of inland navigation. Most impressive was the place where the canal drops to a lower level by six consecutive locks, down to the inland sea of Vener. We liked Stockholm, but both my father and I were somewhat disconcerted by a local custom that struck us as strange. When I went to the bathroom a woman was turning off the taps. I stood and waited for her to go, but she stood and waited for me to undress. The situation was ludicrous. I had not learnt any Swedish and so we had to talk by signs. I soon found that her job was to wash me, and she did so very efficiently! When my father and I compared notes afterwards he told me that when he saw an elderly female with a moustache on her lip and a long-handled brush in her hand he felt something like terror. He screwed up his courage, thrust her out of the door and bolted it. But she was not so easily defeated, for a moment later she came in again by another door that he had not noticed . . . . But he was a resolute man and eventually succeeded in inducing her to believe that he preferred to bath himself in solitary state.

Returning by Copenhagen, we had only a day in the Danish capital, but a few in Hamburg gave me my first glimpse of Germany and I was glad to hear German spoken around me. Even that little was good for the ear.

On another trip we spent a few days in Amsterdam, but I preferred Brussels, where I have a clear memory of dining at the little restaurant l'Etoile, made famous by its immortal chef, M. Dot. Perhaps because it is smaller and more homely I have always preferred Brussels to Paris, or perhaps it is thanks to many happy memories in later days, which were not marred by one unhappy one.

And so by the time my school days had approached their close I had seen a good deal of western Europe, with the exception of the Iberian peninsula, which was reserved for later years, and I was well launched upon the serious study of the Orthoptera.

In 1897 my school days came to an end and I went up to Oxford. I had just missed getting an entrance scholarship at Radley and did the same at New College; but the attempt was worth the effort, as it saved me the trouble of taking smalls and matric.

At Oxford naturally I started playing cricket, but a short and sharp series of double ducks disheartened me and I gave up the game in disgust for several years.

My tutor was a man who earned fame by adding a word to our language in a very original way, the Reverend W. A. Spooner. This famous albino was believed to have retained his appearance unchanged since his 'teens until his death, when he was over eighty. How old he was in my days nobody knew. He was a little man with a rosy complexion, which with his snowy hair, strong spectacles and queer peering gaze made him an unmistakable figure. I never heard him make a spoonerism, but there is no doubt there are several attributed to him which are authentic. I believe the first was his announcement from the pulpit of a well-known hymn as "Kinquering Kongs their Tatles tike". Of course a whole literature has been fathered upon him. The Oxford Dictionary traces spoonerisms back to 1885 and says they were general through England by 1900; but I remember them as being current long before I went up to Oxford in 1897. One of the best, and least known, is probably not authentic. I take it from Dr. Julian Huxley's delightful account of this famous character. He is supposed to have said to an unsatisfactory undergraduate:—"You have hissed all my mystery lectures and tasted two whole worms, and now you will leave Oxford by the town drain".

This odd eccentricity of transposing the initial letters of words revealed itself at times in other and unexpected ways, but it did not prevent him from being a capable administrator. Upon the death of the venerable "Shirt", the Reverend W. Sewell, who seemed to me a link with the past for he was the brother of the founder of Radley, 'the Spoo', as he was affectionately called, was elected Warden of New College, and a very good warden he was. Under his gentle manner he concealed a power of devastation. One day a young don who had made himself objectionable by his bounce met the Spoo in the Quad. "Oh, Mr. Warden", he said, "I have finished the translation of . . . ." (I forget who—it was some obscure late Latin poet). "He wanted translating badly".

"I see", said the Spoo in the gentlest manner. "And so now he has been!"

After the resignation of the Spoo, many years after my time, my old history tutor, H. A. L. Fisher, was elected Warden. He afterwards became Minister of Education. He was a fine historian, a first class writer, an excellent tutor and a great educationalist, and it was a privilege to be admitted to his friendship. I also had the privilege of knowing another famous historian, Sir Charles Oman, before he was knighted. He too was an entertaining historian and had a neat turn of humour. He was a man of distinguished appearance, tall, dignified, with a fine head of hair which in later years was white. Many years afterwards, when I was having tea in his wonderful old house in Friar's Close, off the Cornmarket, a nook of Old England, and was entertained to tea by Lady Oman, who was even handsomer, I felt that it would be difficult to find a finer couple in more appropriate setting.

Another famous Oxford character at that time was the Reverend David Margoliouth, Laudian Professor of Arabic. His strange surname, the exotic appearance of his swarthy complexion, straight, jet black—in those days—hair, dark eyes, somewhat prominent cheek-bones and slightly prognathous jay led some to call him 'Tamerlane', but others dubbed him—most unjustly, even if respectfully—'the College Burglar'. He enjoyed a reputation for prodigious erudition and Professor Oman told me that as a boy at Winchester Margoliouth used to entertain them with stories from the Talmud. It was widely believed that he was a Jew, but he disproved this by becoming a parson. It was said that he did so because in controversy with learned divines upon the interpretation of the Hebrew text of the Old Testament they used to "come the professional" over him and treat him as a mere amateur. Mrs. Margoliouth was also very learned and it was believed that it was when she was engaged upon a Syriac lexicon that the Professor came to help her and so made her acquaintance. The riddle of his origin was never solved to the satisfaction of the undergraduates, but there is little doubt that he was a Syrian Christian, perhaps of the ancient Maronite Church, so that to him Arabic would be a mother tongue and Syriac a familiar classic.

My neighbour on my staircase was an Armenian, who had been educated at an English private school at Harrow, by name Yervant Essayan. He was a sunny character and everybody loved him. One evening he and I were dining with the Margoliouths, when conversation turned on the pronunciation of Arabic gutturals, which to the English are a strain upon the throat and upon the ear. We were sitting round the fire, all four of us, trying to imitate the Professor pronouncing the *'ain* and the *ghain*, with results that were all different but equally horrid. At that moment a visitor came in, and she stopped dead in astonishment at seeing four grown-up persons engaged in what seemed to be a competition in producing unpleasant noises in their throats, and imitating hiccoughs.

But my chief memories of my Oxford days are centred round the Hope Department of the Museum, the foundation of the Reverend Francis Hope, a patron of Science of the early Victorian days. It was really the Entomological Department of the Zoological Museum, under the charge of Professor Poulton.

One great evening the Professor paid me the honour, unusual for an undergraduate, of coming to dine with me in my rooms, and my friend Edgar Schuster helped me out with entertaining my distinguished guest. I exerted myself to the utmost. With the help of my father I secured a bottle of really fine Burgundy and a box of Cabanas, for my father was a connoisseur of cigars and never smoked anything else. The Manciple, as the New College chef is termed, excelled himself. I prided myself on my coffee. I personally superintended the roasting and grinding and brewed it at the table myself, to be sure of its freshness and fragrance. I wrote the menu in zoological terms:—

Ostrea esculenta
Numida meleagris

Solanum   *Spinacia*
Mala   *Musa sinensis*
Vinum burdigalense   *Caffea arabica*

in other words, oysters, guineafowl, potatoes, spinach, apples, bananas, Burgundy and coffee.

When I offered the Professor one of my father's best Cabanas he replied: "Oh, thanks; but I do not smoke".

"Not smoke!" I cried in disappointment, thinking of all the effort and the trouble I had given my father.

"No", he said. "You see, I have no sense of smell or taste. I can only tell the quality of food by its texture. I have no doubt that your coffee is most fragrant, but all I could tell about it would be that it was hot and velvety''.

Edgar and I were crestfallen, but still, the Professor was an entertaining guest, full of anecdote and with a lively sense of humour.

A contretemps also occurred on the occasion of our second dinner with the Professor, when it was our turn to be guests. Edgar Schuster and I owned a light Canadian canoe and occasionally we took a day off and had a whole-day picnic up the Cher, Windrush, or Evenlode. Returning one evening we had wolf's appetites, as we had had a long and tiring day in the open, with but a light luncheon. We were famished. On arriving in College we found a note from Mrs. Poulton, inviting us that evening at 8.30 to meet Mr. Edward Saunders, a distinguished entomologist whom I did not then know personally. We thought it a bit late for dinner, but rather a good idea in the long evenings, so we dressed hurriedly and took a cab to the well-known house in the Wykeham Road.

When we had been introduced we began to wonder when dinner was going to be served, as we were by then suffering from that sinking feeling, when the maid came in and handed round—not cocktails but coffee and cigars! The horror of the situation was clear to me at once. The invitation had not been very clearly worded, but it was evidently intended for us to come round *after* dinner. I did not dare look at Edgar, nor he at me. Out of the corner of my eye I saw him refuse the coffee, but I seized both coffee and fine champagne and a big cigar, anything to try to still the pangs. I fear our conversation that evening was a little stilted. As early as compatible with politeness we made a bee-line for College. All we could find at that late hour was a cake in Edgar's rooms, of which we made short work. It was forty years before I ventured to tell the Professor the story, which set him chuckling.

Current Notes

It would be interesting to know whether any marked effect upon our insect population has yet been observed as the result of the virtual extermination of the rabbit by myxomatosis in certain areas. Reports have already appeared about the effects on plant life. It was stated in one of the daily papers that 1955 was a marvellous year for cowslips, and this was confirmed by the writer's own experience. Another report stated that in one locality where the bee orchis used to be plentiful, not a single specimen was seen: this was attributed to the plants having been stifled by rank growth that had previously been kept under control by rabbits. In at least one locality where rabbits used to abound *Hippocrepis comosa* was unusually conspicuous this year. Perhaps one may hope that this will be followed by an increase in the numbers of *Lysandra bellargus* Rott., which have been on the decline in the past few years.

H. S.

The Nature Conservancy has announced an important new nature reserve in Oxfordshire, an area of Wychwood Forest covering some 647 acres. This is one of the very few areas of ancient woodland now left in this country, Wychwood having been a royal forest since the time of the Norman kings until the 19th century, when the greater part of it was disafforested and the remainder passed into private ownership. The portion now reserved is a mixed woodland, chiefly oak and high scrub, with some hazel coppice, but there are specimen trees of beech, ash and maple. Announcing the reserve the Conservancy states: "It is intended that the Reserve shall be permanent forest, regenerating naturally and consisting of indigenous species of hardwoods on a long rotation. The trees will form the dominant layer in a complex woodland community . . . . The reserve will be used for scientific research and will not be open to the public. Applications for permits . . . . to collect specimens in the Reserve should be made to the Regional Officer for the South, The Nature Conservancy, Furzebrook Research Station, Wareham, Dorset".

Two other reserves are also announced: the Tring Reservoirs in Herts. and Bucks., and Hales Wood near Saffron Walden in Essex. The Reservoirs are well known for the migratory birds which they attract, especially terns and waders, and there is a nesting population of shoveler, teal, tufted duck, pochard, grebes, reed and sedge warblers. There is also an interesting marsh flora. The reserve in Hales Wood includes only 20 acres and is one of the known habitats of the true oxlip, *Primula elatior* (L.) Hill.

The July number of *Weather* contains an interesting paper by F. H. W. Green on climatological work undertaken in some of the Nature Conservancy's reserves. Study of the ecology of fauna and flora is an important part of the Conservancy's work, and consequently microclimates and macroclimates occupy the attentions of the biological staff. For example, when trying to discover the reasons for the relatively poor fertility of the ant population in Dunbartonshire, particularly those of *Myrmica rubra macrogyna*, it was found that "the low isolation of the floor under conifer and bracken reduced the temperatures prevailing to a degree deleterious to ant brood maturation, and that even grass, less than a foot high, has an appreciable though not as severe an effect. Briefly it was shown that full soil isolation was needed for ant success in the cool, wet, cloudy climate of the Clyde Estuary. Since the best conditions for ants in the area are in felled woodland and burnt heather, the ants appear as transient inhabitants".

Another worker, in the Conservancy's research station in North Lancashire, has been studying the light intensity and rainfall which reaches the ground underneath different kinds of tree canopies. In thirteen experimental forest plots it was found that from 6 to 93 per cent. of the gross rainfall may be retained on the tree canopies and be lost to the soil. "During light showers considerably more moisture is retained on the conifer than on the hardwood canopies. In the heavier showers rainwater flows down the stems, but stem flow represents a small proportion of the total water reaching the forest floor. The amount of water which reaches the ground along the trunk varies with the species and the character of branching. Some raindrops penetrate directly through the canopy, but many are intercepted by the canopies and coalesce to fall as large drops on the forest floor. These large water-drops tend to fall continuously on the same spot so that in the plantations the water is distributed unevenly''.

In *Ent. mon. Mag.* for June K. G. V. Smith has a Note on the occurrence of *Leopoldius signatus* Wied. (Dipt. Conopidae) in East Kent and its known distribution in Britain. He remarks that ''on the wing *L. signatus* closely resembles *Conops* species as is evidenced by the fact that the early captures were 'accidents'. In the hand, the short, soft proboscis distinguishes the species immediately. An examination of old collections will probably yield further specimens which are most likely to be included among series of *Conops quadrifasciata* Deg.''. This interesting, and at present rare, fly should be looked for on ivy flowers towards the end of this month.

Ent. mon. Mag. for July contains ''A Provisional List of the Coleoptera of Epping Forest'' by F. D. Buck. This is an impressive list occupying some seventeen pages of small type and there is a folding sketch map giving the names of the localities mentioned in the text.

In *Proc. R. ent. Soc. Lond.* (*A*), issued on 15th June last (Vol. 30, Parts 4-6, pp. 43-86), our correspondent, Dr. Kenneth J. Hayward of the University of Tucuman, prints an interesting paper on the Migrations of Butterflies observed in Argentina, 1953-54. The following paragraph concerns *Ascia monuste* (L.):—''*December 8th*. At 6 a.m. *monuste* was already feeding, and half an hour later the butterflies began to rise and fly west. I left Tucuman at 8 a.m., going north for 20 miles, and throughout this trip they were passing west at about 20 ft., flying towards the mountains some 10 miles to the west. At the village of Tapia I turned west for 15 miles till I reached Raco. Along this road the *monuste* were flying in a more southerly direction. At Raco, the village lying in a narrow valley giving access to the western valleys behind the first range of mountains, *monuste* were passing south in countless millions before a following wind, maintaining a steady 25-30 ft. above the ground whatever its contour. Suddenly, at about noon, the flight flattened out for no apparent reason, the butterflies coming down to a maximum height of about three feet, still hugging the contours, till at 1 p.m. they practically ceased to pass. It was not possible to calculate the wind velocity owing to the nature of the surroundings, but the speed of flight was 25 m.p.h. In the late afternoon very severe thunderstorms began to arrive from the north, accompanied by heavy rain''. Later, Dr. Hayward remarks that ''The speed of 25 miles per hour attained by *Ascia monuste* during the flight recorded for December 8th was due to a very strong following wind''.

We much regret that Dr. E. A. Cockayne's initials were given incorrectly in our May issue (page 159) as ''A. A.''. There *is* a Dr. A. A. Cockayne, but happily the context showed that the reference was to—so far as entomologists are concerned—the ''one and only''. So far as we know, Dr. A. A. Cockayne is not an entomologist.

Notes and Observations

CELERIO LIVORNICA ESP. AT SEVENOAKS.—It may be of interest to report that on the night of 29th July this year I took at m.v. lamp a male specimen of *C. lineata* Fabr. (*livornica* Esp.) in my garden at Sevenoaks in good condition.—F. DENE GREENWOOD, Solefields Lodge, Sevenoaks, Kent. 5.viii.55.

CELERIO GALII SCHIFF. IN CUMBERLAND.—On the night of 26th July I took a specimen of the Bedstraw Hawkmoth in my m.v. trap in Penrith. A friend, Canon G. A. K. Hervey, took one at Great Salkeld (7 miles from Penrith) on the following night. Both of these insects were in first class condition.—W. F. DAVIDSON, Castlegate, Penrith, Cumberland. 29.vii.55.

CELERIO GALII AT WESTON-SUPER-MARE.—I took a fine specimen of *Celerio galii* Schiff. in my moth-trap on 17th July, followed by a second specimen on the 18th. Two further specimens came on the 28th and 29th, making four in all. I am wondering whether there has been a large immigration of this species into this country this year.—C. S. H. BLATHWAYT, 27 South Road, Weston-super-Mare, Somerset. 9.viii.55.

CELERIO GALII SCHIFF. IN LEICESTERSHIRE.—I took a fine *Celerio galii* in my Great Bowden light trap on the night of 14th-15th August.—H. A. BUCKLER, Sutton Bassett. Market Harborough, Leics. 16.viii.55.

CELERIO GALII SCHIFF. IN CAMBRIDGESHIRE.—On Sunday last (14th August) I got a fine female *C. galii* at my m.v. light here.—G. A. FORD, Balsham Rectory, Cambridgeshire. 17.viii.55.

CELERIO GALII SCHIFF. AT FOLKESTONE.—On Monday, 15th August, a female Bedstraw Hawkmoth was caught at this house. It was taken on some honeysuckle about 50 yards from the sea, at 8.30 p.m. It was rather battered and was presumed to be an immigrant. Its identity was confirmed by Mr. A. M. Morley of this town.—A. T. BADEN FULLER, Sandgate, Folkestone. 19.viii.55.

CELERIO GALII AND OTHER RARITIES IN ESSEX.—I will let you have some notes as soon as I can, but fear it will be too late for the September number. You may, of course, think I have joined the "Kentish Buccaneers" and decline to print them! Apart from a female *L. vitellina* in May nothing out of the ordinary occurred until 13th July, and since then I have had 2 *Itame brunneata*, 14 *Celerio galii*, 20 *Eurois occulta*, 7 *Plusia interrogationis*, and yesterday *Plusia confusa* again! I am now prepared for almost anything.

It seems possible, I think, that those species we look upon as strays from Northern England really come from some inland area of Holland or Belgium or thereabouts. All but one *occulta* were in very poor condition and of a pale greyish type; I have a large number of larvae, however.

I saw four *C. croceus* yesterday, the first this year; 3 males, 1 ab. *helice*.—A. J. DEWICK, Bradwell-on-Sea, Essex (*in lit.* 21.vii.55).

CELERIO GALII SCHIFF. AT DORKING.—During the night of 29th July a large ♀ *Celerio galii* came to the light-trap in my garden here at Dorking. She was in fair condition, but the extreme tips of both forewings were a little damaged. The moth was put into a large cage with some sprays of fuchsia, and on the morning of the 31st I could see that she had laid at least 40 eggs. I decided to keep her alive for another night, and killed her on the morning of 1st August, by which time the damage to the forewings was rather extensive. On carefully going over the fuchsia I found that no less than 385 eggs had been laid. This was rather overdoing it, but it has enabled a number of friends to share the windfall and left a margin for wastage.

The eggs, as Tutt says are exceedingly small for so large an insect. When the time for hatching approaches a brownish patch appears on one side of the egg, and under a lens this is seen to be the face of the young larva pressed against the wall of the shell and peering out. Hatching started on the afternoon of 7th August, after a little over seven days, and was complete by the evening of the 10th after some hours in the airing cupboard.

The newly hatched larva is most un-hawkmoth-like in appearance, and does not at all resemble the exciting monsters figured by Buckler. It is yellowish-white with a large and rather darker head, and with rows of minute black dots down the back and low down on each side; the horn is short and tipped with dark brown. The body-colour darkens somewhat after feeding. The brood was given willowherb, and though some nibbling took place the larvae did not attack it with any enthusiasm. It was not until Mr. David Wright advised heat and I put them into an airing cupboard with a steady temperature around 73° F. that they really got down to it, and I now have great hopes of rearing them.

A number of other *galii* have been reported from the southern counties, and in three or four weeks' time it would be worth while searching the Deal sandhills, where larvae were found in numbers in the great *galii* year of 1888.—J. O. T. HOWARD, Wycherley, Deepdene Wood, Dorking, Surrey. 11.viii.55.

RARE MOTHS AT WESTON-SUPER-MARE.—It may be of interest to record the capture of the following species in my moth trap in this garden at Weston-super-Mare during June:—6th June, *Nycterosea obstipata* Fab.; 15th June, *Heliothis peltigera* Schiff.; 16th June, *Margaronia unionalis* Hübn.—C. S. H. BLATHWAYT, 27 South Road, Weston-super-Mare. 18.vii.55.

ALCIS JUBATA THUN. IN PENRITH.—I took a specimen of *A. jubata* at the m.v. trap in my garden in Penrith on 4th August 1955. This is the second occurrence at this locality in three years. There is no large deciduous wood near to me, and almost the whole of the old Cumberland records relate to Baron Wood, which is about twelve miles away from Penrith.—W. F. DAVIDSON, Castlegate, Penrith. 6.viii.55.

ORIA MUSCULOSA HÜB. AT WESTON-SUPER-MARE.—I took a specimen of *Oria musculosa* in my moth trap in this garden on the morning of 24th July last. This seems a long way from its Wiltshire haunts.—C. S. H. BLATHWAYT, 27 South Road, Weston-super-Mare.

LARVAE OF CELERIO GALII SCHIFF. NEAR WOLVERHAMPTON.—Yesterday I received two fully grown larvae of the Bedstraw Hawkmoth. They were found crawling on some pit props at the base of a 600 yards deep mine shaft near Wolverhampton. The props had recently been stored near growing plants of willowherb and yellow bedstraw. I am hoping the larvae will pupate during the next few days.—W. MORRIS, 66 Wells Road, Penn, Wolverhampton, Staffs. 27.viii.55.

IMMIGRANTS IN INVERNESS-SHIRE.—A female *Rhodometra sacraria* L. came to my m.v. trap at Newtonmore on 24th August. I think it probably a migrant, borne so far north by the sustained S.E'ly air current which has been blowing consistently for days. Perhaps we shall see another autumn brood of this usually rare little moth. My specimen has since laid plenty of eggs. No sign of *Celerio galii* here yet, but I am searching for larvae. This morning, 27th August, a fine male *Palpita unionalis* Hb. was in my trap. I wonder what will come next!—COMMANDER G. W. HARPER, Neadaich, Newtonmore, Inverness-shire. (*in lit.* 27.viii.55).

A GYNANDROMORPH OF EUPROCTIS SIMILIS FUES.—On the 17th August, in my Great Bowden light-trap, I took a vertically halved gynandromorph of *Euproctis similis;* the left side is female. It has the large plain wings of the female and the small antenna. The right-hand side is very distinctly male; it has the black spot in the angle, the wings are smaller than on the female side, and the antenna is large and bipectinated. Now comes the point! "It" turned out to be distinctly feminine in one respect, because it laid two small batches of eggs in a pill-box. I imagine that if these are fertile and hatch, they may be scientifically interesting, but I would not trust myself to hibernate them and bring them through. I therefore send them to you as you will know best what to do with them.—H. A. BUCKLER, Sutton Bassett, Market Harborough. 20.viii.55.

[The 17 eggs which Mr. Buckler so kindly sent me were in batches of 12 and 5 and had been laid on the side of a 2½-inch circular glass-bottomed 'pill-box'. The weather being hot, this box was at once put on a slate slab in a cool larder, with a piece of wet blotting-paper inside the box.

By 9.0 a.m. on 24th August 6 of these eggs had changed colour, and by noon on that day these six eggs were of a leaden hue. At 3.15 p.m. (the same day) the head of one larva came into view, eating its way out, and at 4.10 p.m. it crawled out of the eggshell. At 4.20 p.m. another larva emerged, and by 7.0 p.m. four more had hatched—six in all. The remaining eggs proved to be infertile.

The larvae were put on hawthorn in a one-inch diameter glass-topped pill-box, and this box was placed inside a 3-inch circular glazed larva tin, on the bottom of which were four thicknesses of wet blotting-paper.

The first ecdysis took place between 30th August (four) and 31st (two). As soon as the larvae started to feed they were transferred to a 2-inch pill-box, but still kept inside a 3-inch larva tin. At the time of going to press all six larvae are doing well.—P.B.M.A.]

A NOTE FROM FORDINGBRIDGE.—In reply to your letter asking about the season here entomologically, I have not found it very good generally speaking. I thought it might be going to be a migrant year when I had a fine *C. livornica* to my light on 8th May—my only good capture this season except for a couple of *A. alni* which I believe has been taken not uncommonly elsewhere. I heard of a capture of *C. galii* in Devon about a fortnight ago. Butterflies have been distinctly sparse except for an influx of whites last month. I saw only 4 *C. croceus* in a large clover field in about an hour on the 15th August near here. My only notable butterfly was given to me by a schoolboy—a perfect straw-coloured *A. aglaia*. There should be a second brood of *A. selene* after this hot summer—I have had about 20 per cent. of some larvae of this species feed up and now emerging (indoors).—P. J. BURTON, Paysanne, Godshill Wood, Fordingbridge, Hants. (*in lit.* 17.viii.55).

A NOTE FROM HERTFORDSHIRE.—Apart from a specimen of *Vanessa cardui* which I noticed on a bank of King's Langley station on 1st June I have seen no migrants, certainly no *C. croceus*, and, I regret to say, no *galii*. I have continued to run a moth trap, although I fear its present site is not a good one, and this has not attracted any migrants either. However, I took a specimen of *Lophopteryx cucullina* on a fence in Berkhamsted on 2nd August. This is not a common moth in Hertfordshire. The only county records I have in the book are larvae taken in 1857 and one other record at Berkhamsted in 1937 (Hodgson).

Another moth of interest was *Gnophos obscurata* of which I took a specimen on Berkhamsted station platform on 29th July. This appears to be only the third record for the county. I took one at light two years ago and a specimen or specimens were taken by G. V. Bull at Hoddesdon sometime before the war—date not recorded. The possibility of my specimen having been transported in a train cannot be ruled out and this might even have happened for my previous record, since where we lived then is in sight of the railway.—PETER BELL, The Old Cottage, Wigginton, Tring, Herts. (*in lit.* 18.viii.55).

A NOTE FROM BOURNEMOUTH.—I have often wondered whether any larvae had taken to feeding on the buddleia which is nowadays such a prominent feature in our gardens and bomb sites. I had never found one of any species until to-day, when I saw a nearly full-grown larva of *Biston betularia* L. on a buddleia in my garden. Its colour harmonized completely with the stem on which it was resting.

A few feet away a *Volucella zonaria* was making its annual appearance on a flower-head of *Eupatorium cannabinum*; its resemblance to a small hornet (*Vespa crabro*), especially when in flight was remarkable. —H. SYMES, 52 Lowther Road, Bournemouth. 14.viii.55.

NOTES FROM PURBECK.—From 28th July to 7th August twenty-three *Colias croceus* have been observed along various parts of the coast between Handfast Point and Durlston Head. On 3rd August a ♀ *Colias hyale* was seen by Fishing Barrow, near Studland. It was in excellent condition. *Vanessa cardui* are about in good numbers, and quite fresh. From 29th July to 10th August countless hundreds of *Pieris brassicae* and *P. rapae* have been coming in from a S.E. direction each day between 9 a.m. and 4 p.m., settling all along the cliff edge and then making off to the N.W. I have visited many inland parts of Purbeck during the past week and they are to be seen in great numbers on the hills, meadows and heathland.—LEONARD TATCHELL, Swanage, Dorset. 11.viii.55.

Butterflies in Leicestershire.—As far as butterflies are concerned I have only been out once or twice with specific objects. *Argynnis aglaia* is a very sparse insect in Leicestershire, occurring in only two localities widely separated. I have visited one of these and saw about a dozen of them, which is about up to average. *Maniola tithonus*, of which I know only one haunt in this county, was in excellent numbers —far more than usual. The two small whites are at the moment in splendid numbers, although I may have an exaggerated view of these as my paddock at present is a kale field and appears to have hundreds of whites in it all day, with *P. brassicae* in the minority. There are no blues or coppers about at the moment. The early broods were late and poor and it may have affected the second brood. My buddleias now flowering are not producing the usual crop of Vanessids. A few *Aglais urticae* are now emerging and I have seen one *Nymphalis io*; here again there may be a delayed emergence. I have seen nothing of any immigrant species.

I have been working my light traps all August, and although there have been some interesting varieties of common moths, with the exception already mentioned in a previous paragraph (*C. galii*) there has been nothing outstanding whatever. This morning I had about three hundred common moths in one trap, spread over thirty species, all of the very commonest. Owing to absence from home I have done no breeding but should very much like to get back to it as it is much more satisfying in many respects than certain other forms of collecting.—H. A. Buckler, Sutton Bassett, Market Harborough, Leics. (*in lit.* 16.viii.55).

A Few Notes from South Westmorland.—Prolonged cold weather delayed the emergence of spring species in these parts, but, when they did appear, the Orthosias were plentiful. *O. advena* Schiff. comes occasionally to the m.v. light trap here; it is apparently very uncommon in this area and my records of it are among the very few for Westmorland. All the Orthosias except *O. populeti* Treits. occur here.

May was about the most disappointing month I have ever experienced—cold winds made the operating of the m.v. trap useless—indeed there was not a single night during the whole month when it was worth switching it on. By day, even on the few occasions when the sun was warm, insects were practically absent. The spring butterflies were an almost complete failure. Since then the season has been gradually improving, though even the wonderful weather of the last few weeks has not repaired the damage caused by the bleakness of May. Obviously a year or two must elapse before its effects have been obliterated. Very few species have been up to their normal strength, and the only two butterflies to be abundant have been the two Erebias, both of which were very plentiful in their restricted haunts.

An interesting and welcome failure has been *Agrotis exclamationis* Linn. On no occasion have I counted more than six in the trap, whereas in previous years numbers of the order of two hundred were frequent. One could wish that *Triphaena pronuba* Linn. would similarly fail—but no!

Several of the choicer species have appeared in the trap more frequently than usual, the most noteworthy being *Ammogrotis lucernea*

Linn., *Anaplectoides prasina* Fab., *Apamea furva* Linn., *Plusia bractea* Fab. and *Venusia cambrica* Curt. No doubt the reason for this is the succession of "good" nights in July, and not an increase in their numbers. An interesting visitor to the trap was one *Plusia interrogationis* Linn. on 20th July. It must have wandered several miles from its moorland haunts, and it is the first time it has appeared here, though it occurs, of course, on moorlands in the South Westmorland area. *Thera cognata* Thunb. does not wander as far as my trap (though *Eupithecia sobrinata* Hübn. curiously enough often does so) but it was in good numbers in its restricted haunts on Hutton Roof Crag, less than a mile away.

The most recent species of interest is *Eurois occulta* Linn., a fresh male of which appeared in my trap on 14th August and two more, not quite so fresh, on 19th August. As there were a good many in the neighbourhood last year it looks as if this species is definitely breeding locally. It will be interesting to see how the autumn species fare, most of which will have still been in the egg state or very young larvae during the bad spring weather.—REV. J. H. VINE HALL, Hutton Roof Vicarage, Westmorland. 20.viii.55.

SOME OBSERVATIONS FROM WEST CUMBERLAND.—The clear impression from my brief visits to the West Cumberland coast this year is that the bad spring weather which played havoc in South Westmorland did far less damage here. The summer butterflies have been out in profusion. Butterflies began to appear remarkably early here, too, many *Pieris napi* Linn. being out by 20th April, and one specimen of *Coenonympha pamphilus* Linn. and one of *Lycaena phlaeas* Linn. were seen near St. Bees on 22nd April.

Circumstances have prevented much moth-hunting here, but on 2nd August I saw *Scopula marginepunctata* Goeze and a specimen of *Mesotype virgata* Rott. on Drigg sandhills. Both have been recorded before but are very uncommon in this corner of England and it may be of interest to know that they still occur there. To work the sandhills at night with a m.v. lamp would be most interesting and unfortunately I have never been able to do it.

Migrants have been very scarce, but a few *Plusia gamma* Linn. have been about for the past ten days or so, and just a very few *Vanessa atalanta* Linn. and *V. cardui* Linn. have been seen—never more than three of each, however, in any one day.—REV. J. H. VINE HALL, Hutton Roof Vicarage, Westmorland. 20.viii.55.

LAMPRA FIMBRIATA SCHREB. (TRIPHAENA FIMBRIA L.) ON THE ISLE OF CANNA.—A specimen of this moth, in good condition, was found in my moth trap on 14th August. I understand that it has not previously been reported from this archipelago.

Catches in the trap were well below normal until about two weeks ago, since when there has been a great increase in the number of moths about. The last two nights of the moth trap, August 12th and August 14th, produced 390 and 408 specimens respectively. Of these 99 and 115 were *H. micacea*, which is abundant this season, and 55 and 53 were *T. pronuba*. The number taken in the trap has hitherto never exceeded 265 in a night (July 8th, 1952). I shall have more to say about some of these captures later.—J. L. CAMPBELL, Isle of Canna. 15.viii.55.

A New Foodplant of Mimas tiliae L.?—On 10th August, in a very urban district of Bournemouth, I found a full-fed larva of *Mimas tiliae* L. crawling up a low brick wall under a large cherry tree. None of the usual trees on which this larva is found was anywhere near. The only trees within sight were laburnum, pear and horse chestnut. Under the circumstances, it seems extremely probable that the larva had been feeding on cherry.

When I mentioned this incident to Mr. A. C. R. Redgrave, he told me he had once found a larva of *Smerinthus ocellata* L. on a cherry tree in the late Mr. W. Fassnidge's garden in Southhampton, and had successfully reared it on this diet and eventually obtained an imago.—H. Symes, 52 Lowther Road, Bournemouth. 15.viii.55.

Pyrausta nubilalis Hübn. Abundant in South-east London.—Although a perusal of recent numbers of the *Record* would suggest that this moth, said to be a casual immigrant, is becoming less rare with us and perhaps establishing itself more widely, most of the captures in question appear to have been of single or few specimens only. Also, according to Beirne (1952, *British Pyralid and Plume Moths*: 151-2) it has—or had—died out in some of the Essex localities where it had bred for several years. I am glad therefore to be able to report that *P. nubilalis* is resident in at least this part of S.E. London and plentiful wherever the mugwort, *Artemisia vulgaris*, flourishes on waste ground.

Last year in early August I took a few rather worn examples in a nearby weedy lane, but, having at the time no good figures to refer to, was uncertain of their identity until this year when both sexes in fresh condition turned up on the same spot at the end of June. I next found it very common over an extensive area of rough open ground, where the *Artemisia* grows in extreme luxuriance, on the Blackheath side of Shooters Hill. (On this occasion, my operations were at once noticed by the inevitable band of small boys, who naturally insisted on taking a hand and, despite all efforts to stop them, declared instant war on the luckless *Pyrausta* and were soon hastening back to me from all sides bearing triumphantly in each grubby fist a *nubilalis*—shattered to shreds. They were, I believe, quite unable to see the point of my protests and genuinely supposed they were helping.) The moth is frequent also on a building-site not far from here. I have netted it after dark at street lamps; and even put up a stray specimen or two in the garden, where there is no mugwort, so that the lights of the house were clearly the attraction—in fact at least one has found its way indoors. The species attains its peak here about mid-July, to judge from the present season.

Prof. Beirne remarks on its allegedly high susceptibility to certain unfavourable weather conditions (*ibid.*: 152). Since, however, it has evidently survived here, quite unscathed, the vagaries of our climate over the last two years—surely a fair endurance-test for any tender lepidopteron—I have no fear for the local colonies of this Pyralid until such time as its breeding-grounds are 'improved' away. Even should this fate overtake some of them, I am much disposed to think that the insect will henceforth prove to have a far stronger hold, not only around London but elsewhere in the south-east, than has so far been suspected.

It is known to be established somewhere in Kent (Beirne, *l.c.*); and is doubtless now to be found over much of the north-west of that county, as I have noted it this season at Erith, Swanscombe, and Otford. (A female from the latter locality is the largest I have seen, with a wingspan of 33 mm.) New Surrey records also can be expected. Whether the species yet breeds in the north suburban districts is perhaps less certain; but probably it is only a matter of time.

It may be mentioned in passing that the female often presents a closer (albeit superficial) resemblance to *Loxostege verticalis* L. than to its own male; and since in this neighbourhood the two species seem always to occur together, confusion is easy, especially in the field—at least until one notices that on the underside *verticalis* has the pattern heavily marked in blackish, while in *nubilalis* ♀ it is faint and ill-defined. Even above, of course, the markings do differ considerably in detail when compared in the two insects.—A. A. ALLEN, 63 Blackheath Park, S.E.3. 14.viii.55.

FURTHER NOTES ON REARING PANAXIA DOMINULA L.—Continuing my notes on *P. dominula*, published in last February's issue, telling of a pairing in December 1954 with resultant larvae at the end of the following January—these larvae fed well indoors until April when they ceased eating and entered the hibernating phase. As I had no idea how to treat them with the summer approaching, I put 10 larvae, in early May, into my refrigerator by day and out of doors by night, the temperature then usually being below 36° F. At the end of a week they were brought in to room temperature and started to feed, but rather half heartedly all through. A dozen were then kept at zero for 4 days and then warmed up, but were slower than the first lot to respond. The remainder were kept out of doors but showed no inclination to feed until in desperation I sleeved them on growing comfrey towards the end of June. These all died off by the end of July although some were three-quarter grown by then. The first lots fed up slowly and irregularly with many casualties and emerged over a long period—from early July to 8th August. Four of the first 10 larvae reached maturity and only 3 of the second dozen. All were males, which put an end to speculation on the result of a pairing and a complete reversal of the sex ratio of the December emergencies with the one exception. All the insects had much smaller spotting than the average and the last one was deficient in the external basal spot on the forewings.—P. J. BURTON, Paysanne, Godshill Wood, Fordingbridge, Hants. 17.viii.55.

MOTH AND CENTIPEDE.—The other afternoon, and during brilliant sunshine, my attention was suddenly drawn to a disturbance amongst the border plants of the garden—evidently a noctuid moth, wildly careering around, but with a waving impediment attached to its body, which prevented it taking flight. This was observed for quite a matter of two or three minutes, when the moth and its attachment settled amongst the plants sufficiently for a closer inspection. It proved to be a *Amathes triangulum* Schf. with a centipede—*Lithobius forficatus* (the common English centipede)—attaching itself to the underside of the moth's thorax. Making another effort to shake off its attacker, the noctuid again resumed its wild fluttering around the Lobelia, for close on five more minutes, and then coming to rest again, almost at my feet, I was witness to its successful efforts at last; the centipede almost as suddenly, being the loser, vanished into the soil. I think I would not have been so impressed had I noticed this life-or-death drama at dusk, or even during dull weather, but in any case I have not previously known of similar observances from the Insect world, and I forward it in case you think it would be of interest to readers of the "Record".—ERIC W. SMITH, 93 Craithie Road, Town Moor, Doncaster, Yorks. 3.viii.55.

ABERRATION OF NYMPHALIS IO LINN.—As it is a rare occurrence for an aberration of *Nymphalis io* Linn. to be found in nature I think it may be worth while to record that I was fortunate enough to capture, in a field of devil's-bit scabious near Fareham, Hampshire, on 20th August 1955, a female variation of this species. The ocelli are obliterated on both forewings with absence of colouration, including the yellow spot between the two black markings on the costa. The hindwing markings are quite normal. I made a thorough search, but it was the only abnormal specimen spotted amongst the number of *Nymphalis io* Linn. in this field at the time.—B. S. BURNS, 1 Jamaica Villas, Stoke Road, Gosport, Hants. 23.viii.55.

STRYMONIDIA W-ALBUM KNOCH IN NORTH-WEST KENT.—Regarding the occurrence of *Strymonidia w-album* in North-west Kent mentioned in the July/August *Record* (page 210), although I have had an intimate knowledge of the North Downs around Shoreham and Eynsford extending over a great many years, I have never come across this butterfly in that area. It may, however, be of additional interest to record that during the last war *w-album* occurred for three successive years in my garden here. Another spot where I have noted its appearance quite commonly in recent years is in a wood about a mile due south of Oxted in Surrey, just over the Kent border.—F. DENE GREENWOOD, Solefields Lodge, Sevenoaks, Kent. 24.viii.55.

NOTODONTA TRITOPHUS SCHIFF. (PHOEBE SIEBERT) AT FOLKESTONE.—Yesterday morning (22nd August) I had the good fortune to find in my moth trap a male 'Three Humped Moth'. Though slightly worn its appearance is much more striking than the illustration in 'South'.—A. M. MORLEY, 9 Radnor Park West, Folkestone, Kent. 23.viii.55.

DIPTERA

A NOTE ON TETANOPS MYOPINA FALL. (OTITIDAE).—Mr. K. G. V. Smith's recent note on *Tetanops myopina* (1955, *Ent. mon. Mag.*, **91**: 153) and Mr. L. Parmenter's earlier note on the species (1952, *Ent. mon. Mag.*, **88**: 41) prompt me to give my own experiences with this rather peculiar fly.

On 28th June 1951 *T. myopina* was abundant on the sand dunes at Dyffryn (Merioneth) when I collected there in company with Messrs. J. Cowley and C. H. W. Pugh, and was again quite plentiful on Oxwich (Glam.) sand dunes on 17th June of this year (1955). In his note Mr. Smith quotes Col. Yerbury's record of the species in 1920, when it was found commonly 'sitting on the Marram Grass' at Porthcawl (Glam.).

Yerbury's record suggests that a good catch might be taken by sweeping the grass in a suitable locality, but this is by no means in accordance with my own experience. On neither of the above occasions did I see a specimen anywhere but on the bare, dry sand, usually on the dune slopes where the Marram Grass grew more sparsely. The species is not easy to spot when resting on the sand, as the semi-opaque, sandy-coloured wings are folded back along the body and entirely cover the conspicuous shining black abdominal markings. I found that sweeping the Marram Grass in an area where I knew the species to occur did not produce a single specimen, and the reason for this became clear when experimental attempts were made to capture individuals. When disturbed, *Tetanops myopina* flies off rapidly, keeping only an inch or two above the surface of the sand, so that normal sweeping fails to catch any of the specimens thus put to flight. The most successful way to capture the species, in my experience, is to spot a sitting specimen, bring the net smartly over it while holding the tip of the net-bag clear with the other hand, and immediately whip the net up and sideways. The whole operation must be carried out as a single movement, as although the impact of the net-ring with the sand almost invariably causes the specimen to fly up and settle on the side of the bag, it remains there for only a second or two, returning immediately to the sand. Occasionally a specimen will become covered by the soft sand when the net is brought down over it, and on completing the operation the collector will see his intended victim wriggle through to the surface and fly off.

It seems probable that *Tetanops myopina* is not so uncommon as generally supposed, its apparent scarcity being due to its almost perfect camouflage combined with its somewhat unusual habits. The inconspicuous character of the species when in its natural habitat may be judged by the fact that, in June this year, I had collected on the Oxwich sand dunes for a whole week without being aware that *Tetanops* occurred there. It was only on the last day when, remembering that a Swedish friend would be glad of specimens, I adopted the method described above and obtained a good series of each sex in quite a short space of time.—E. C. M. d'Assis-Fonseca, 19th August, 1955.

ORTHOPTERA

Stenobothrus lineatus Panz. in Hertfordshire.—The only certain record of *Stenobothrus lineatus* (Panz.) in V.C. 20 (Herts.) appears to be for Chesfield, near Hitchin (Ray Palmer in *Nat. Hist. Hitchin Region*, 1934), though it probably occurs elsewhere on the Chilterns, since it is recorded for near Luton, in Beds., by B. Verdcourt (*Ent. mon. Mag.* **81**: 8).

On 31st July I came across a colony of this very local grasshopper at Hertingfordbury, in the south-east of the county. The insects occurred at an altitude of about 180 feet on a level stretch of dry grassland, where the chalk was clearly very near the surface: prominent in the flora were *Briza media* L., *Thymus pulegioides* L., *Cirsium acaule* (L.) Scop., *Poterium sanguisorba* L., *Helianthemum chamaecistus* Mill, *Linum catharticum* L., *Phleum nodosum* L. and *Lotus corniculatus* L., with occasional plants of Ragwort.

In an hour's search only males were seen, and they appeared to be much less active than *Omocestus viridulus* (L.) and *Chorthippus parallelus* (Zett.), both of which were plentiful.

I am collecting information for a study of the distribution of Orthopteroid insects in the area covered by the London Natural History Society, *viz.* within a radius of 20 miles from the City, and I should be interested to hear from any naturalists who have recent records.—R. M. PAYNE, 8 Hill Top, Loughton, Essex. 4.viii.55.

Fifty Years Ago

(From *The Entomologist's Record* of 1905)

FOODPLANTS OF PAPILIO MACHAON.—I have just received a note from Mr. Raine, mentioning, so far as I can ascertain, a new and remarkable foodplant for *P. machaon*. He says, writing from Hyères: "I was at La Plage yesterday (*i.e.* October 13th, 1905), and found a larva of *Papilio machaon* feeding on *Echinophora spinosa* L., growing on the shore there. Such an extraordinary foodplant seems worth recording". *Echinophora* belongs to a section of the *Umbelliferae* that contains no so far recorded foodplant of *P. machaon*. In England its foodplant is, I suppose, *Peucedanum palustre*, and it not only eats in confinement (Buckler) *Angelica sylvestris*, but is apparently found on it in the fens. Taking its whole European range, I imagine *Daucus carota* is its commonest foodplant. Kaltenbach notes also *Carum carui*, which he places first in the list, adding *Anethum foeniculum*, *Apium graveolens*, *Daucus carota*, *Pimpinella saxifraga*, and *Angelica sylvestris*. Rühl adds to the list *Peucedanum oreoselinum* and *Heracleum sphondylium*. In *Dubois* I find, mentioned in addition, *Achillea millefolium* and *Artemisia absinthium*. I do not know on what authority, and should like some strong confirmations before accepting composite, as well as umbelliferous, plants as accepted foods of the species. *Anethum foeniculum* is, I suppose, a synonym of *Foeniculum officinalis*, common fennel. A Spuler adds *Ferula*, *Meum*, and *Fragaria*, the latter certainly looks doubtful. It is very probable that there are various other umbellifers that it will eat, or may even be found on in nature, but the one in which Mr. Raine has found it seems certainly one of the least likely.—T. A. CHAPMAN.

THE RED SPOT IN STRYMONIDIA W-ALBUM KN.—We have noticed a slight variation of the upper side in *Thecla w-album*; this is in the size of the red spot on the hindwing at the anal angle. In every description of this butterfly we have read, this marking has been totally ignored, though it is generally present, or at least indicated by a few red scales. Most of our specimens are so marked, but we have one or two of both sexes where it is quite absent.—J. F. BIRD, Tintern, Monmouth.

SYMBIOTES LATUS IN NORTH LONDON.—On September 29th last, I went to Enfield to join Mr. Pool for a few days' collecting in this district. At Palmer's Green, under the bark of a felled elm, we took eight specimens of the rare *Symbiotes latus*. The beetles were only found where a white powdery fungus occurred under the bark, looking much as if flour had been spilt on the tree.—HORACE DONISTHORPE.

THE ASSEMBLING OF ORGYIA RECENS (GONOSTIGMA).—On 29th June and 1st July this year I bred two females of *N. gonostigma* from larvae beaten at Brentwood. The latter day being a Saturday, and coming out sunny about noon after a rainy morning, I made all speed to take these females down to their old home, in order to find them mates. I arrived on the ground at about 2.30 and found the males flying from that time till 5.20, although they got decidedly scarcer after the first hour . . . . I must have seen nearly 50 males in all, and secured just 24, mostly in fine condition. What interested me most, though it lost me so many specimens, was their curiously specialised habit in seeking the females. Of course, there is no doubt that they come up by ''following the scent'', but when they got close this invariably failed them or was abandoned, and they substituted a systematic search about the branches of the tree, prying in under the tufts of leaves, and quite evidently knowing by instinct just where the female cocoons ought to have been spun up. Very few came and settled on my assembling cage, which was hung from an outside twig in order to give me a fair chance with the net, and a large number abandoned their quest in despair before ever giving me the opportunity for a stroke. Add to this that the flight seems even more rapid and erratic than that of *N. antiqua*, and that the somewhat darker colour makes them less conspicuous on the wing, so that I seldom saw them approaching or departing, and it will be realised that I had pretty exciting sport. When the flight was over, I introduced three males into the cage, and two pairings were readily obtained. The previous removal of the females from their cocoons seemed to be no obstacle. —LOUIS B. PROUT.

Current Literature

THE PHYSIOLOGY OF DIAPAUSE IN ARTHROPODS, by A. D. Lees, pp. x + 151, 25 text figures. Cambridge University Press, price 12s 6d.

In this new volume of the Cambridge Monographs of Experimental Biology, Dr. Lees gives a full account of the present state of our knowledge of diapause in the Arthropods. Much of the work concerns insects but there is also a good account of the process in other members of the Arthropoda, especially of Dr. Lees' own work on the mites.

The study of insect endocrinology is relatively recent so it is not surprising that there is still much work to be done on the subject of this monograph. At the same time so much work that has been done on the subject is scattered through many journals, often not readily available, that this collection of the known facts to date is the more welcome. The study of diapause is essentially a synthesis from physiology, biochemistry and ecology. There is still much fundamental work to be done by simple breeding experiments in relation to various conditions of temperature and light and so on and much of this work could be done by the amateur breeder of lepidoptera. If this book does a little to stimulate such experiments it will have been worth the writing. But the book is not primarily intended for the mere collector. It is a work for the serious student—amateur or professional—and such will find the work interesting and stimulating.

Diapause is a condition occurring in animals having discontinuous growth characteristics such as occur in the Arthropods. It may be defined as a condition of *spontaneous* arrest of development or activity and is to be differentiated from the interruption of growth, etc., controlled directly by unfavourable environmental conditions. This latter condition is better termed "quiescence". Diapause may occur at any stage of growth—embryonic or post-embryonic. Various external factors take a major part in its control such as temperature, light and dark, relative humidity, inherited characteristics and others. So far as concerns photo-periodism—the relation between the length of light and dark periods—it is interesting to note that some insects can respond to rates of change of proportions between the light and the dark—they can in fact tell that the "nights are drawing in". But species vary and it is this variation that provides such a large and interesting field of study for the enquiring mind.

Care in interpretation is necessary for it is not very clear sometimes what effect a given cause may have. *Bombyx* can lay eggs which may go into diapause or not. Which type of eggs are laid depends on the conditions to which the *egg* of the parent moth was subject.

The chapter on the metabolic modifications for diapause shows that in general the evidence indicates that a diapausing insect maintains itself on fat. Insects going into diapause lay down stores of fat and while actually diapausing their R.Q. is about 0·7. (It is interesting to note in this connection that hibernating mammals, *e.g.* marmot, have an R.Q. of between 0·6 and 0·7.) An R.Q. below 0·7 probably indicates that carbohydrate is being formed from some of the fat. There is much of interest here for the experimental physiologist.

The last two chapters concern themselves with the humoral control of diapause and the relationship of phenology.

There are some 16 pages of references and an adequate index.

Dr. Lees is to be congratulated on producing a very readable and knowledgable volume.

N. L. B.

THE ENTOMOLOGY OF SPURN PENINSULA by Members of the Entomological Section of the Yorkshire Naturalists' Union. Being a collection of Annual Reports published in *The Naturalist*, 1951-1954. 100 pages. Limited number of copies available from E. W. Classey, 22 Harlington Road East, Feltham, Middlesex. Price 7s 6d.

The Yorkshire Naturalists' Union is happy in having a goodly number of able, active field workers in all departments of Natural History. The instigator of this present study—Dr. W. D. Hincks—was fortunate in having the happy co-operation of all the members of his expert team. The avowed object of these reports here collected together was to provide an authoritative list of all the species occurring at Spurn. At the same time a number of valuable observations have been made regarding population changes and life history so that those workers at Spurn coming after will have great reason to be thankful for this foundation stone to their efforts.

Collecting has been confined to four principal visits of about 10 days each spread over the years 1947-1950 and covering only the trimester June to August. Records of a few single day visits outside the principal periods have been added and also some notes for years after 1950. Even in such a limited time of study something like 2,000 species of invertebrates are here recorded and there seems little doubt that there will be many more to be discovered especially so far as concerns the less well-known orders.

The pamphlet is divided into sections and to give some idea of the scope it may be profitable to detail these and add their author's name. At the same time it must be pointed out that many more people took an active part than are here named.

1. Short introduction to the ecology of Spurn, by G. H. Ainsworth.
2. Notes on the General Zoology of Spurn, by P. M. Butler.
3. General entomology of the area, by W. D. Hincks.
4. Orthopteroid and neuropteroid Orders, by the same.
5. Hemiptera, by W. D. Hincks.
6. Lepidoptera, by H. N. Michaelis.
7. Coleoptera (excluding Carabidae and Staphylinidae), by W. D. Hincks.
8. Col. Carabidae, by S. Shaw.
9. Col. Staphylinidae, by W. O. Steel.
10. Hymenoptera (excluding aculeates), by W. D. Hincks.
11. Hymenoptera aculeata, by S. Shaw.
12. Diptera, by W. D. Hincks.

12a. Siphonaptera and Anoplura, by S. Shaw.

13. Arachnida, by A. C. Braham and J. H. Murgatroyd.
14. Other Invertebrates, by P. M. Butler.
15. Addenda, corrigenda, etc.

The work is well printed on good paper and there is a sketch-map of Spurn indicating the main eco-habitats of the area studied. Owing to the fact that the work was published in parts of a journal the pagination is not consecutive, nor is there an index. These are minor blemishes in an otherwise excellent and useful reference work.

There is, I feel, a moral in this production. How much more worth while it is for a number of workers to get together and work out a single area as fully as they can rather than chase about the countryside after some special insect in a special locality where all know all about it and there is little to add to the knowledge of that species. Better also to consider an area of natural boundary rather than the contents of an artificially bounded political area.

Dr. Hincks and his co-workers have done a good job and have pointed the way for future work, not indeed at Spurn alone but elsewhere.

N. L. B.

* * *

EXCHANGES AND WANTS

Wanted.—A subscriber wishes to purchase rare and extreme forms (British) of *Lysandra coridon* Poda.—*Box No. 5, c/o the Assistant Editor, No. 4 Windhill, Bishop's Stortford, Herts.*

Wanted.—Living female pupae of *Saturnia pavonia* or any other large female pupa (*Laothoe populi, Smerinthus ocellata*, etc.) for work on assembling scents. Cash or exchange.—*Dr. H. B. D. Kettlewell, Genetics Laboratory, Department of Zoology, University Museum, Oxford.*

Wanted.—Distribution records in Great Britain and Ireland (especially Ireland) of *Erebia epiphron* Knoch (Small Mountain Ringlet). Localities will be kept secret if so desired.—*Dr. J. F. D. Frazer, Stone House, Boxley, Maidstone, Kent.*

Wanted.—Old insect sale catalogues pre 1952. Also early Bulletins of the Amateur Entomologist's Society. Exchange for other books or cash.—*L. Christie, 137 Gleneldon Road, Streatham, London, S.W.16.*

Wanted.—Lepidoptera of North West Surrey. I am preparing an account of the distribution of Macro-lepidoptera and Pyralidina in Surrey, north and west of the line Weybridge, Woking, Worplesdon, Normandy, Ash Vale (inclusive). Records with full data would be welcome, even of common species: Pyrales and Plume Moths particularly needed.—*R. F. Bretherton, Ottershaw Cottage, Ottershaw, Chertsey, Surrey.*

Wanted.—Pinned or alcohol preserved adult winter gnats (Diptera, Trichoceridae), particularly members of individual swarms, for study of variation of species. Postage refunded.—*B. R. Laurence, Birkbeck College, London, W.C.1.*

Exchange or Purchase.—Edric Higginbottom of "The Butterfly Nursery", Hathersage, Derbyshire, invites entomologists having healthy vigorous livestock of British or Foreign Lepidoptera, surplus to their own requirements, to give him the opportunity of exchanging or purchasing at a good price.

For Disposal.—The collecting apparatus of the late Mr. H. W. Andrews, including nets, boxes, tubes, setting cases, and boards, magnifiers, pins, postal boxes, headband magnifier and binocular microscope by Leitz. Fuller details may be had from our Hon. Treasurer, and offers should be made to Mrs Andrews, Spring Cottage, Smugglers Lane, Highcliffe, Christchurch, Hants.

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Spring and Summer Seasons, 1955

By Air Marshal Sir Robert Saundby, K.B.E.

The cold and very wet summer and autumn of 1954 not only produced a poor season last year but aroused some fears as to its possible effect on the season of 1955.

In Gloucestershire, Berkshire, and north Hampshire the second brood of *Lysandra bellargus* was so meagre as to be almost non-existent, and this year the first brood on the downs near Eastbourne was very poor indeed. I have been in north-west Scotland since 12th August and have therefore not had an opportunity of seeing the second brood this year, and I do not know whether it is showing signs of recovery. *L. coridon* was as numerous as usual this year in Hampshire and Wiltshire, though the ploughing of downland has sadly reduced the area of its habitat.

The fine hot weather since mid-June has aroused hopes of an immigration of *C. croceus*, but I have seen only three so far, though *V. cardui* is more numerous in north Hampshire than it has been since 1949.

Apatura iris was scarce in my district this year, but *M. galathea* and *A. hyperantus* have been commoner than usual. I was lucky enough to take three ab. *caeca* ♂ of the latter.

To turn to the moths. March was a very poor month. Hardly anything came to the m.v. light-trap in my garden until early April, when there was a rapid build-up of numbers. My records show a total of 75 on 5th April, 183 on the 9th, 252 on the 10th, and over 400 on the 11th. All the common spring noctuids showed up well, except *P. piniperda* and *O. miniosa*, while *O. munda* and *O. incerta* were unusually abundant and variable. Two which are not common in my district, *O. populeti* and *O. advena* (*opima*), were more in evidence than usual. Most spring larvae were backward and scarce.

The early summer moths were late in coming out, and the cold nights which persisted until early June caused the light-trap to be very empty. The weather changed in the middle of June, and soon moths were coming to light in plenty. Most species appeared in their usual numbers, but some, such as *A. exclamationis*, *A. c-nigrum*, and *T. comes*, were in less than their normal abundance, while *T. ocularis*, *D. festiva*, *A. prasina*, *R. tenebrosa*, *P. pulchrina* and *P. iota* were more plentiful than usual. *A. caja* was also much commoner in my garden than it has been for years.

In Ross-shire the season was early, and the fine warm weather brought more moths to light than I have seen there before. Especially common were *A. lutulenta* (ab. *luniburgensis* and ab. *sedi*), *A. agathina* and *H. lucens*. Larvae are also unusually abundant, and have fed up quickly. There is no evidence that the bad weather last year has had any generally adverse effect in this part of Scotland.

I have seen none of the less common migrants so far this year. There has been an invasion of *C. galii*, but I have not had the luck to come across it. Possibly the long spell of hot, dry weather may prove favourable to the late summer and autumn immigrants.

It would appear that there has been, in general, a rapid recovery from the dearth caused by last year's dismal weather. There are, however, a few exceptions to this rule, and the scarcity of *L. bellargus* is giving grounds for justifiable anxiety. It has not been holding its own for some years now in many of its former haunts, and the possibility of the extinction of this lovely butterfly is not one which anyone could contemplate without dismay. It is to be hoped that the fine weather this year has given it a chance to recover.

Notes on *Xylomiges conspicillaris* L.

By H. SYMES, M.A.

The neighbourhood of Taunton has been one of the best-known localities for *Xylomyges conspicillaris* L. ever since this species was discovered there by Mr. H. Doidge in 1901. He made this find, as we read in 'South', in a rather surprising manner, by digging up the pupae under oak and elm trees. It must have been a lucky dig, as the larvae do not feed on the leaves of these trees, and one would not expect to find the favourite food-plant, bird's foot trefoil (*Lotus corniculatus*) growing near the base of their trunks. I do not know if anyone ever digs for the pupae of *conspicillaris* nowadays, and should be surprised to hear that they did. Since the introduction of the m.v. light, large numbers of the moth have been taken in this way: apart from that, most entomologists in recent years have obtained their specimens by searching the posts along a certain well-known stretch of railway line, and it was by this method that the Rev. F. M. B. Carr, my wife, and I found eleven moths during the first week in May this year.

It was a very late season, and the moths were, I think, only just beginning to emerge. This belief is supported by the fact that on 2nd May our bag was 0, on 3rd May one, on the 4th three, and on the 5th seven. It was noticeable that about half the moths were resting on the side of the posts that was exposed to the sun and to a strong wind, and they had all chosen wooden posts. Many of these have been replaced by concrete ones, and in a few years there will probably be none of the wooden ones left. With one exception, the moths were all of the form *melaleuca* Vieweg. I kept two of mine for eggs, and on the night of 6th May one of them laid a mass of eggs on the muslin covering of the box in which she was confined. Sustained from time to time with sugar and water, which she absorbed eagerly, she survived until 19th May, but did not lay any more.

The eggs, about 225 in number, were piled on top of one another, but were easy to separate: when first laid, they were of a greenish-white colour, but after four days they changed to grey. They are very small for the size of the moth. There was a *Xylocampa areola* Esp. laying in the next box, and its eggs were at least twice the size, although *conspicillaris* is the larger of the two moths. The eggs usually hatch in about ten days. Buckler says his were laid on the night of 5th June—surely a very late date—and hatched on the 14th and 15th. Doidge's eggs hatched on 31st May, ten days after they were laid. Mine, laid on 6th May, did not hatch until the 24th. This was presumably due to the sub-arctic weather conditions that prevailed during the middle of May this year.

The young larvae are very active, and when I took the glass lid off their box, those that had been resting there let themselves down on a silk thread about an inch long and remained dangling at the end of it. They fed equally readily on the leaves and the flowers of *Lotus corniculatus.* Greyish-brown when first hatched, they became green after three or four days, and in their second instar they remained green or became yellow: this depended on whether they fed mainly on the leaves or the flowers of the *Lotus.* In their third and later instars the larvae are brown, and during the day they hide themselves in dark corners of the breeding cage or under leaves and stalks of the *Lotus* strewing the floor, and come up to feed at dusk. Some of them soon began to feed up much more rapidly than others. The earliest of the brood had their first moult on 2nd June, their second on 7th June, their third on the 13th, their fourth on the 17th, and their fifth and last on 25th June. There were few casualties in the first two instars, but after that, mortality was very high, especially among the slower growing larvae. Some of these had not completed their growth by 21st July. In the end, 75 larvae that I had kept for myself produced only 11 pupae. The other 150 larvae I had distributed in batches of 20 to 25 among friends, some of whom lost all theirs, while none of them, as far as I know, obtained pupae from 50% of their larvae.

Nocturnal Lepidoptera at Chandler's Ford, Hants

By B. Goater.

An 80-watt m.v. lamp was operated on every possible occasion in my garden at Chandler's Ford from April 1951 until December 1954, and a careful record of catches was made in an attempt to assess the relative abundance of night-flying macrolepidoptera in the district. The following remarks are intended to summarize the results and to illustrate the advantages and disadvantages of the apparatus and the conditions under which it was used.

The garden is wooded and nearly all the trees are birch. There are two young Scots pines, a large and well sugared oak in the front, besides a few apple trees and cultivated shrubs. Next door there is a small row of Lombardy poplars, and nearby an extensive area of birch, pine and scattered oak, ash and yew. There is a small swamp with willows and alder about 300 yards away. The usual flowers and vegetables are cultivated in neighbouring gardens. The ground flora of the woods is typical of birchwoods—extensive bracken, with patches of several species of grass and of rosebay willowherb. The roadsides have been colonized by the small willowherb and incidentally *Deilephila elpenor* L. seems to prefer it to rosebay, though I find the larva still on both species and even occasionally on the great hairy willowherb. There is a patch of ling in the garden, but very little survives on Hiltingbury Common a mile away, which was devastated during the war and has never been allowed to recover. There is almost no open grassland in the immediate neighbourhood. An extensive building programme threatens the whole district, and already the heath and many of the oaks and pines are gone and suburbia has taken their place.

The lamp was operated at the bottom of the garden, on a tripod, in a far from ideal position. It was enclosed on two sides by hedges of

Cupressus macrocarpa, on the north were birches and the house, and the aspect to the south, though reasonably open, had obstructions in the form of bushes and a wooden fence. Furthermore, circumstances prevented my using a trap, and since regular all-night sittings are more than the human frame can stand, especially with examinations in view, one could normally work for only the first three or four hours after dusk, on an average of every other night. Then 1953 and '54 were spent in the Forces, and lamping was possible only at week-ends. Despite these limitations, however, the lamp enabled me to record many species which I had not seen in the district before. The total number of species recorded was 339, but the number of individuals was small. I seem to have read somewhere that more than 50,000 *c-nigrum* have come to a similar lamp (with trap) in a single night; my sum total of *O. luteolata* L., the most abundant visitor, in the whole of 1951 was 220!

Remarkably few migrants and reputed migrants were seen at the light. *Plusia gamma* L. was present every season for a long time, but only in ones and twos. *Nomophila noctuella* Schiff. sometimes accompanied it. I caught many more *P. gamma* at flowers not far away. *Agrotis ipsilon* Rott. was not uncommon, and *Laphygma exigua* Hübn. came in 1952—one in March and three in August. I do not think the summer ones had migrated. Of the migrant Sphingids there was no sign, though *Herse convolvuli* L. and *Celerio livornica* Esp. are known in the district.

The bulk of the visitors were insects known to breed in the county, though not necessarily in this locality. Many of the most abundant species were birch eaters—*Achlya flavicornis* L., *Biston betularia* L., *Dasychira pudibunda* L., *Notodonta dromedarius* L., *Lophopteryx capucina* L., *Pheosia gnoma* Fab., *Drepana falcataria* L., *Apatele leporina* L. Others hitherto unrecorded by me appeared at light: *Drymonia trimacula* Esp., commonly, a single *Polia tincta* Brahm, and, most surprising of all, *Enargia paleacea* Esp. in July 1951 and again in 1952. *Stauropus fagi* L. was common and *Odontosia carmelita* Esp. came in small numbers every year.

Owing to building and felling there is far less oak in Chandler's Ford nowadays. Nevertheless, certain moths associated with that tree were recorded regularly at the light, and some at least must have wandered some distance. *Notodonta anceps* Göze was common and so was *Drepana binaria* Hufn. Several *Polyploca ridens* Fab., a fair number of *Lymantria monacha* L., three *Moma alpium* Osbeck, and a few *Griposia aprilina* L. were seen. I feel sure that *D. trimacula*, like *D. ruficornis* Hufn., another commoner, was eating birch; but all the specimens I saw were males and I was unable to experiment with the larva's alimentary tastes. I was disappointed not to meet with *Catocala promissa* Esp. as I had taken it once before in the garden at sugar and have found the larva very occasionally.

The poplars next door must have been the headquarters of *Tethea ocularis* L., especially common in 1951, *Cerura hermelina* Göze, *Pheosia tremula* Clerck, and a single *Clostera curtula* L. I had seen none of these insects in the area before, though *Apatele megacephala* Fab., another common visitor, sometimes turned up.

From the pinewoods came *Hyloicus pinastri* L., the commonest hawkmoth after *D. elpenor*, a few *Panolis flammea* Schiff. each spring, fewer *Bupalus piniarius* L., *Thera firmata* Hübn., *Ellopia fasciaria* L. and an abundance of *Thera obeliscata* Hübn. *T. variata* Schiff. was common in the autumns of 1953 and 1954.

Single specimens of *Amathes agathina* Dup. and *A. castanea* Esp. were noted in 1951. Both used to be found on Hiltingbury Common and I took a lot of *castanea* at sugar in the district in 1949. I had not seen *agathina* since pre-war days. *Lycophotia varia* Vill. was very numerous and used to fly out of the patch of ling by the lamp.

Those abundant grassland insects *Luperina testacea* Schiff. and the common *Amathes* and *Leucania* could be found more profusely by sugaring and dusking amongst long grass, and only *xanthographa* and *c-nigrum* were at all common at light.

Some moths undoubtedly wander considerable distances from their breeding quarters. The nearest locality where one may expect to find *Hadena lepida* Esp., *H. nana* Hufn., *Heliophobus anceps* Schiff. (*saponariae* Bork.), *Deilephila procellus* L., *Procus literosa* Haw. and *P. furuncula* Schiff. is on the chalk at Shawford, over two miles away, yet they all appeared at the light from time to time. None had been seen before the m.v. era. Certain marsh moths, too, found their way to the light—*Comacla senex* Hübn., *Nonagria sparganii* Esp., *Arenostola pygmina* Haw., *Rhizedra lutosa* Hübn. and *Plusia festucae* L. Apart from a single pupa of *sparganii* in a small moorhen-ridden *Typha* bed I have not heard of this species less than ten miles away.

Certain species known to occur in the district, having been taken in the garden even, did not turn up at the light. These include *Macthylacia rubi* L., females of which might reasonably have been expected, *Rhyacia simulans* Hufn., *Graphiphora augur* Fab., *Tholera cespitis* Fab., *Brachionycha sphinx* Hufn., *Mormo maura* L., *Tiliacea citrago* L., *Lithophane semibrunnea* Haw., *Theria rupicapraria* Hübn., *Erannis aurantiaria* Esp., *E. defoliaria* Clerck and *Ennomos quercinaria* Hufn. Others are known to be much less rare than their numbers at m.v. suggest—*Arctia caja* L., *Phalera bucephala* L., *Orthosia miniosa* Fab., *O. munda* Esp. and many Geometridae including *Sterrha trigeminata* Esp., *Operophtera fagata* Scharf., *O. brumata* L., *Euphyia bilineata* L., the Erannids, and *Lycia hirtaria* Clerck. The absence of some of these is explicable in terms of habits: for instance *sphinx*, *bucephala* and *hirtaria* are late fliers and I am sure they would have come in numbers had I had the courage to wait up for them. Others such as *bilineata* and *maura* are of a skulking disposition. I now get *maura* at light in Mill Hill, Middlesex, where the lamp is much nearer the house. Another group includes almost certain rarities such as *Rhyacia simulans* Hufn., *Tiliacea citrago* and *Ennomos quercinaria* Hufn. I cannot think why *semibrunnea* and the two *Orthosia* were so rare at light because plenty are found at sugar, sallows, street lamps and other people's m.v. apparatus; so it must be a peculiarity of the setting of the lamp. Having observed the behaviour of Geometers near an m.v. and noted their relative abundance at street- and house-lights, I am sure they are repelled by the powerful light long before they are dazzled, so avoiding it. Some fast-flying Lepidoptera are repelled in the same way, but usually only when approaching at a tangent, 20 yards or more away from the source.

Summing up, the "blue" light has proved its usefulness by revealing some forty species of macrolepidoptera whose presence in the district had not been suspected; many others have been found to be much more abundant than was believed. Some are certainly resident in the area, others probably wanderers from outside. On the other hand, because of its position and limited period of operation the lamp was not visited by a number of species known to occur but flying outside the immediate area covered by the lamp in space or time. A more complete picture of the population of Lepidoptera in the district would have been gained by operating not a single lamp in a fixed position but running a series of carefully positioned all-night traps. Finally, some groups and species seem to avoid the m.v. lamp and their abundance can only be assessed by the time-honoured methods of the field worker, which are in any case much more fun.

The list (to be begun in the next issue of the *Record*) includes all the macrolepidoptera of which I have personal record in the district. The district with which I am most familiar includes the northern part of Chandler's Ford and Cranbury Park, a well wooded estate between Chandler's Ford and the next village, Otterbourne.

(*To be continued*)

Collecting in Berwickshire, January—June 1955

By A. G. Long, M.Sc.

During the winter of 1954-1955 I made several attempts at pupa digging, chiefly under oaks at Gavinton, Kyles Hill, Aiky Wood near the Duns to Grantshouse Road, and at the Retreat below Abbey St. Bathans. I obtained about two dozen sound pupae, most of which produced *Orthosia stabilis* Schf. and *O. incerta* Hufn. The more interesting finds were *Erannis leucophaearia* Schf. from Gavinton and the Retreat, *Orthosia cruda* Schf. from Aiky Wood, *Bena fagana* Fab. from among fallen oak leaves at Kyles Hill, and *Panolis flammea* Schf. from under a Scots pine at Kyles Hill.

During these winter months I also prepared some mercury vapour light traps. One for home use I made out of a tea-chest. Two others for taking further afield I constructed out of spare bee-hive brood boxes. Each inverted cone was made from four triangular pieces of galvanised sheet iron (gauge 22) fixed together by Meccano nuts and bolts. A mercury vapour lamp socket was similarly fastened across the top of each inverted cone. These portable traps are bottomless and when using them I set them down on a white sheet, operating the lamps from a small Pioneer generator in the back of my van. I work a 125-watt and 80-watt lamp simultaneously, usually about 200 yards apart. My results seem to show that the situation of the lamp is more important than its power as sometimes I have caught more moths at the 80-watt lamp. Possibly three 80-watt lamps well separated would give the best results.

The first moths of the year were *Phigalia pedaria* Fab. and *Theria rupicapraria* Schf. on 29th January at Gavinton lamps. Two male *E. leucophaearia* hatched from pupae on 2nd and 19th February. Towards the end of February male and female *P. pedaria* emerged in my breeding-cages and I obtained a pairing. The female started laying on 1st March and the larvae started to hatch out on 1st May. On this date some eggs of *Poecilocampa populi* L. also hatched. These fed much more slowly than those of *pedaria* and the first spun its cocoon about mid-July.

On 30th and 31st March I tried out my m.v. lamps at Kyles Hill road-end. I discovered that *Achlya flavicornis* L. was just beginning to emerge. On 3rd April I visited the same spot and about two dozen fresh specimens of this lovely moth came to the lamps. The night was clear with moonlight, and there was much audible activity among the pink-footed geese on Hule Moss. A wood-pigeon was serenading among the pine branches at 10.30 p.m. Other moths in flight were *Colostygia multistrigaria* Haw., *Alsophila aescularia* Schf. and the first *Orthosia gothica* L. was seen. Truly the season had started.

On 7th April I took my lamps to the same site again, but the night was very different. My diary told me that the moon was full, but no moon was visible, the sky being overcast with thick cloud. At first the moths came well, and then the flight died down and light rain began to fall. I considered packing up but persevered and suddenly about 9.30 p.m. a large black-and-white moth plunged on to the sheet. It was *Biston strataria* Hufn., unrecorded by Bolam for the eastern Borders, a lovely male specimen. I had already tried for this moth on two nights (5th and 6th April) at the Retreat below Abbey St. Bathans but without success and now it turned up unexpectedly in a locality where birch predominates. My visits to the oak woods at the Retreat, however, were not without their reward as I discovered *O. cruda* to be not uncommon there. Some came to Tilley lamps as well as to m.v. lamps. Later I found this species near Oxendean Pond in Duns Castle woods. Bolam considered it to be rather local in the eastern Borders.

On 13th April I set out for Gordon Moss and arrived about 7 p.m. to find the gate padlocked. A notice informed me that a key was obtainable at the village police station, so I went along to ask for it. I discovered that the policeman was one who had investigated my Tilley lamp operations in the early hours of one morning last August. . . . I borrowed the key and put down my traps and sheets. The night was cool and starry with a slight westerly breeze. I worked the lamps from 8.15 to 11.15 p.m. and was rewarded with three *Orthosia advena* Schf. and some *Cerastis rubricosa* Schf., *O. incerta*, *O. stabilis*, *O. gothica*, *C. multistrigaria* and *A. flavicornis*. I pushed the borrowed key through the letter-box of the police station door at midnight and was home by 12.30. It was worth it to get another species new to me.

The anticyclonic weather of April, however, gave us cold clear nights with ground frosts and these were hopeless for collecting. However, on the 19th I tried both Tilley and m.v. lamps by the old railway near Gavinton—a good place for wild roses. I expected to get *Earophila badiata* Schf., but by 11 p.m. I decided to switch off in despair. Immediately afterwards I took three specimens at my two Tilley lamps. On 22nd April I again tried my lamps at Kyles Hill road where 20 to 30 specimens of *Nothopteryx carpinata* Bork. put in an appearance. This moth is fairly common where birch abounds.

On 28th April I again visited Gordon Moss in company with Dr. Macnicol and Mr. Pelham-Clinton of Edinburgh. *Lampropteryx suffumata* Schf. and *Colocasia coryli* L. were just beginning to fly, but the most interesting captures were two *Agrotis ipsilon* Hufn. at Dr. Macnicol's lamp.

In early May I went in search of *Ectropis bistortata* Göze. I knew that this species was in the county as I have reared a single larva from some unrecorded locality. I went to the North Bog near Oxendean in Duns Castle woods. Here there is a mixed wood, chiefly birch, elm, alder, pine and beech—a haunt of the pied flycatcher, wood warbler, marsh tit, jay and heron. By searching many hundreds of birch trunks I discovered one male *bistortata* sitting about eighteen inches above ground level in a small depression of the bark. The following evening (8th May) I searched the same locality again and took three more. Two of these were females and one I kept for eggs. These were bright green in colour like the opening birch leaves. I have reared over 100 pupae, one of which hatched in early August. The species must therefore be normally single brooded in Berwickshire.

On 9th May I took my lamps to Oxendean Pond and netted another male *bistortata* as it was flying away. I also took a single *Drymonia ruficornis* Hufn. This was a new locality for this species. Later I took others at Kyles Hill and at the Retreat on the Whitadder. These records show that it is widely spread in Berwickshire.

My best collecting night in May was the 23rd. This was the first warm night after about a fortnight of cool weather. I took my lamps to the Retreat and recorded fifteen species including *D. ruficornis*, *Pheosia gnoma* Fab., *Selenia lunaria* Schf., *S. bilunaria* Esp., *Lophopteryx capucina* L., *Lithina chlorosata* Scop., *Biston betularia* L., *Euplexia lucipara* L. and *C. rubricosa*. Earlier on the same evening I took a freshly emerged female *Saturnia pavonia* L., to Greenlaw Moor and put her in a cage on the Ordnance Survey triangulation pillar at 6 p.m. After 13 minutes a male came flying directly up wind about two feet above the ground. On reaching the pillar it must have overshot the scent as it turned and circled several times unable to locate the cage which was about four feet above ground level. I therefore put the cage down on the ground, and the male quickly found it.

On 24th May I operated my lamps at Kyles Hill and took *D. ruficornis*, *Hadena bombycina* Hufn. and *Apatele rumicis* L. Later I took three other specimens of *bombycina* at the same place: they arrived shortly after midnight. I also took *S. lunaria* among the oaks at this locality. When sugaring near Gavinton during the previous autumn I had caught two "Thorn" larvae descending the same elm trunk on different nights after dark. These produced imagines of *S. lunaria*. Nevertheless this species seems more partial to oak woods. At Kyles Hill I was pleased to find three patches of the Oak Fern, *Thelypteris dryopteris* (L.) Slosson while looking for a spot to place a Tilley lamp and sheet.

On 28th May I took my lamps to the Bell Wood above Cranshaws in the Lammermuirs; but after sunset the temperature dropped quickly to 32° F. The frost crystals were glistening on my sheets and I had to pack up. Only two moths came to the lamp, *C. rubricosa* and *Rusina umbratica* Göze. I saw a fox come out among the heather along the opposite hillside and I saw it make a quick rush, after which I heard a rabbit squeal. Myxomatosis had not yet arrived there. The following night I visited Kyles Hill again and took *Eumichtis adusta* Esp. This species had previously evaded me being scarce at the Gavinton lamps where *Hadena thalassina* Hufn. is much commoner. However, the portable lamps have revealed that *adusta* is quite common on upland ground. I found it later on Pennanshiel Moss near Coldingham Moor.

Monday, 30th May, was a glorious day, so I decided to go in search of *Euclidimera mi* Cl. on Cockburn Law. In the boggy alder wood near the Whitadder I found some lovely fresh *Hydriomena coerulata* Fab. and the first specimen of *Electrophaes corylata* Thun.; the smell of dead rabbits, however, was nauseating. On the Law I saw at least six moths flying over the heather, but old Mother Shipton was too fast for me. The first I saw settled and I got my net over it, but it escaped. However, I took a worn female *H. bombycina* which laid over a hundred eggs. These produced a fine healthy looking brood of larvae which fed up well on hawthorn; but to my disgust they all died when full grown having apparently contracted some disease as deadly as myxomatosis—and this after I had transported them to Lancashire and back during my summer holiday! Some of these *bombycina* larvae were dark brown, others light brown and a few dirty green.

On 1st June a pupil brought a larva of *Setina irrorella* L. from the coast. There are colonies of this species at Burnmouth and Eyemouth. The larva pupated and produced a female moth on 8th July. Three specimens of *Anticlea derivata* Schf. came to my home trap in Gavinton in the first week of June.

The night of 4th June was dull and warm with some rain. I operated my lamps from 10.30 p.m. to 2.30 a.m. at Oxendean Pond. The temperature never dropped below 53° F. and I recorded 34 species. These included *Ecliptopera silaceata* Schf. (abundant), one *Triphosa dubitata* L., several *Celama confusalis* H.-S., one *E. bistortata,* one *Pterostoma palpina* Cl., also *Drepana falcataria* L., *Perizoma affinitata* Steph. and *Eupithecia tantillaria* Bdv. Pleased with these results I made a return visit on 13th June and in a moment of forgetfulness I connected my 80-watt lamp direct to the generator, omitting the choke. When I switched on there was a mighty surge and I fused the lamp. Somewhat humiliated I continued operations with one lamp and took a single *Harpyia furcula* Cl.; but heavy rain put a stop to further collecting and I was forced to retire.

During June a good series of *Clostera pigra* Hufn. emerged from pupae reared from larvae obtained on dwarf sallows along the railway side at Gordon Moss during the previous August.

On the evening of 15th June I walked out on to the heather moor between Kettleshiel and the Dirringtons. The sun was shining and there was a good flight of *Eupithecia nanata* Hb., *E. satyrata* Hb., *Epirrhoe tristata* L., *Xanthorhoe spadicearia* Schf. and *Ematurga atomaria* L. I found a larva of *Dasychira fascelina* L. spinning its kenspeckle cocoon among the tips of heather shoots. On this date the eggs of *H. bombycina* hatched.

On 17th June specimens of *Apatele leporina* L. and *Lasiocampa quercus* L. var. *callunae* emerged in my breeding cages. Two pupae of *A. leporina* which had lain over two winters still declined to hatch although apparently healthy.

Friday, 24th June, was a record night. I went to Gordon Moss, arriving about 9 p.m. I treacled telegraph poles and fencing posts along the railway which cuts right through the Moss. I had the lamps on from 10.30 p.m. to 2.30 a.m. and recorded a total of 50 species. Never before had I seen moths come to treacle in such numbers, twenty to thirty on each patch, making a total round about a thousand. There must have been over a hundred *Anaplectoides prasina* Schf. in all their first fresh splendour. *Hyppa rectilinea* Esp. and *A. leporina* were there along with *A. rumicis* L., *A. psi* L., *Diarsia brunnea* Schf., *D. rubi* View., *Amathes c-nigrum* L., *Euplexia lucipara* L. and the first *Triphaena pronuba* L. At light I took *Macrothylacia rubi* L., *Tethea duplaris* L., the Prominents *P. gnoma* Fab., *N. ziczac* L., *L. capucina* L. and *N. dromedarius* L.; *Drepana falcataria* L., *Venusia cambrica* Curt., *Lyncometra ocellata* L. and *Xanthorhoe ferrugata* Cl. (which I had not recorded before in the county). A sedge warbler broke into song at 2.20 a.m., and as dawn broke the sky cleared and one of my sheets became stiff like a board with slight ground frost. It was a record night for the first half of the year and it gave me a great thrill to see moths crowding the treacle patches in such numbers.

Notes on Collecting in 1955

By the Rev. F. M. B. Carr.

During the first three months of 1955 the weather in this area (South Hampshire) was consistently wintry. A fine morning on 4th February tempted me to make a beginning. A small oak wood near Broadstone sometimes much frequented by *Erannis leucophaearia* Schf. beckoned me out of hibernation; but the Spring Usher was not to be deceived, and only two misguided individuals put in an appearance. And the majority were right. For a prolonged dose of winter followed until mid-March, when *Theria rupicapraria* Schf. came to light in the house. Rather better weather in April brought the commoner *Orthosias* and others to light. *Nomophila noctuella* Schf. appeared as early as 10th April. Most species were late, and it was therefore surprising to see *Cerura vinula* L. on 21st April. *Nothopteryx carpinata* Bork., rarely seen here, appeared at Mudeford at the end of the month.

On 2nd May Mr. Symes and I went to Taunton for a few days in quest of *Xylomiges conspicillaris* L. We worked hard for this moth but found it scarce and came to the conclusion that it was behind time. *Anthocharis cardamines* L. was just beginning to appear. The *conspicillaris* posts also yielded *Apatele rumicis* L., *Cucullia chamomillae* Schf., *Graptolitha ornitopus* Hufn., *Xylocampa areola* Esp., and a single *Eupithecia* as yet unidentified. Would that the artistry of Mr. S. N. A. Jacobs could be extended to the 'pug' family! The figures in 'South' show nothing remotely resembling many of the 'pugs' that one encounters. The rest of May was distressingly uneventful. *Euphydryas aurinia* Rott. was common at Hod Hill on 23rd May, though few females were yet to be seen.

By 1st June *E. aurinia* had become by far the commonest butterfly at Hod Hill. *Hamearis lucina* L. was about in good condition, but of *Lysandra bellargus* I saw two only. Early in June *Chilodes maritima* Tausch. and *Semiothisa alternaria* Hb. appeared at light at Mudeford, but both species were scarcer than usual. The examples of *C. maritima* taken by me here and at Sandbanks have all been of the type.

On 10th June Mr. and Mrs. Symes and I went to the Norfolk Broads for a week. The weather was at its worst at first but improved after a day or two of terrific thunderstorms and hail. With the improvement *Papilio machaon* L. appeared in fair numbers, and eggs of the species were found on milk parsley. As Mr. Symes has already contributed notes on this butterfly to the *Record* there is no need for me to say more. Except for a couple of *Meliana flammea* Curt. taken at light in my bedroom at Horning, and a solitary *Panemeria tenebrata* Scop. on Barton Turf, I saw nothing else of note.

On my return to Mudeford I found moths coming freely to light. On 20th June a worn *Hyloicus pinastri* L. came hurtling into the room. Mr. Barton tells me that this moth in the light trap is a most unwelcome visitor by reason of its destructive and perpetual restlessness. Imagine the horror and dismay of a non-entomological member of the gentler sex at the entry of *H. pinastri* into her lighted bedroom! A male *Nycterosea obstipata* Fab. came to light on the 29th, and amongst the less frequent visitors here were *Agrotis clavis* Hufn., *Apamea crenata* Hufn., *A. unanimis* Hb., *Diarsia festiva* Schf., *Hadena thalassina* Hufn., *Ricula sericealis* Scop., *Electrophaes corylata* Thun. and *Aphomia sociella* Linn. *Hadena suasa* Schf., often very common, made its first appearance late in the month. It was unusually scarce this year.

Two expeditions to Hurst Castle for *Setina irrorella* L. met with very different results. The first, with Mr. B. C. Barton, was on 29th June. Though fine the day turned out to be very windy and only two *S. irrorella* braved the elements. The second, with Mr. H. Symes, on 6th July, was attended with ideal weather conditions, and the moths abounded, though very few females were seen.

As soon as the moonlight nights that marked the first week in July came to an end, and the prolonged hot dry spell set in, moths abounded at my light at Mudeford. Several nights produced more than 50 species apart from micros other than a few Pyralids. Amongst the July visitors were *Notodonta dromedarius* L., *Habrosyne pyritoides* Hufn., *Thyatira batis* L., *Tethea ocularis* L., *Malacosoma neustria* L. (both buff and red forms, also a buff male with dark central band and dark abdomen), *Philudoria potatoria* L., *Phragmatobia fuliginosa* L., *Miltochrista miniata* Forst., *Eilema griseola* Hb. and ab. *stramineola* Dbld., *E. lurideola* Zk., *Euxoa tritici* L., *Leucania straminea* Tr., *L. conigera* Schf., *Cryphia muralis* Forst., *Apamea ypsilon* Schf. (*fissipuncta* Haw.), *Hydraecia paludis* Tutt, *Cosmia pyralina* Schf., *Arenostola phragmitidis* Hb., *Coenobia rufa* Haw., *Chilodes maritima* Tausch., *Jaspidia pygarga* Hufn., *Plusia iota* L. (for the first time), *Laspeyria flexula* Schf., *Scopula imitaria* Hb., *Nycterosea obstipata* Fab. (7 males and 2 females), *Perizoma bifaciata* Haw., *Euphyia unangularia* Haw. (commoner than usual), *E. rubidata* Schf., *Plemyria bicolorata* Hufn. (have not previously taken this species here), *Thera firmata* Hb., *Horisme tersata* Schf., *Eupithecia succenturiata* L., *Chloroclystis coronata* Hb. (a new record for me here), *Acasis viretata* Hb., *Hydrelia flammeolaria* Hufn. (another new record), *Deuteronomos erosaria* Schf. (new record), *Itama wauaria* L., *Cleorodes lichenaria* Hufn., *Pyrausta nubilalis* Hübn. Of the last species I usually take one or two a year. This year several came to light.

Perhaps the greatest pest in July was *Leucania lithargyria* Esp.

Plusia gamma L. was fairly common. On one night only, 28th July, it appeared in exceptional numbers, fifty being in the room together. *Arctia caja* L. appeared in larger numbers than usual. I took a nice male aberration one night. The brown markings of the forewings are very heavy and much joined up, as also are the black markings of the hindwings. *Abraxas grossulariata* L. was seldom seen. Perhaps the spraying of its foodplants is responsible for its diminution in numbers. Out of a very small number seen I took an aberration in which the outer margin of the forewings is adorned with black streaks spreading inwards.

On the 19th Mr. B. C. Barton kindly invited me to his m.v. light at Highcliffe. The evening proved to be rather cold, but 40 or 50 species put in an appearance. They included *H. pinastri*, *Deilephila elpenor* L., *Stauropus fagi* L., *Tethea or* Schf., *Apatele leporina* L., *Craniophora ligustri* Schf., *Cosmia pyralina* (3), *L. straminea*, *L. flexula* and *P. bifaciata*.

A visit to Badbury Rings with Mr. Barton on 20th July was marked by glorious weather. Butterflies abounded. *Maniola tithonus* L. was an easy first. *Aphantopus hyperantus* L. was plentiful, Mr. Barton taking ab. *arete*. *Argynnis aglaia* was in fine condition: I took a beautiful pair at rest on the grass. *Strymonidia w-album* Kn. could find no privet or bramble blossom so made do with thistle and parsnip heads. This butterfly was locally plentiful. *Lygephila pastinum* Tr. and *Mesotype virgata* Hufn. were walked up.

On 26th June Dr. H. King and I went to the New Forest to beat for larvae of *Eupithecia indigata* Hb. We found them few and far between. Whilst beating the pines for these a small larva of *H. pinastri* fell into the beating-tray, also larvae of *Panolis flammea* Schf. The combination of heat, strenuous labour, meagre success and myriads of pestiferous and greedy diptera drove us forth from the trees into the open. We sought relief in fresh air and the pleasant fragrance of Pepper Box Hill. Here we found *Hesperia comma* L. darting about in good numbers.

My last expedition of the month was with Mr. Barton to Morden Heath, where we met with indifferent success: only one *Coscinia cribraria* L. and a female *Dasychira fascelina* L. The latter kindly obliged with 40 new laid eggs. A few *Gnophos obscurata* Schf. of the large very black form that inhabits this heath were tapped out.

Martin's Close, Mudeford, Christchurch.

(*To be continued.*)

Collecting at Dalwhinnie and Forres, July and August 1955

By L. E. Savage.

This year, I cannot say that the season has been especially good for Lepidoptera, and I believe that droughts are prejudicial rather than favourable to their increase. However, against my better judgment, I decided to take a holiday with my wife in Scotland, spending one week at Dalwhinnie and the remaining week at Forres. I had not been to the former place since 1949 in search of *Crymodes assimilis*, during which stay I made no captures and, in fact, saw very few other species.

In any event, it would be most interesting to compare the two years' collecting, particularly as the weather this year has been so hot and sunny, and all weather reports in July pointed to a continuance of this.

We arrived at the Loch Ericht Hotel, Dalwhinnie, for dinner, after two very hot days of travelling, but after refreshment and a much needed rest I went to the moors with treacle pot in great hopes, and although the temperature had been 83° F. during the day it had dropped to 45°. by midnight. Not a single moth came to the sugar, but a friendly cleg without designs on my body decided to walk from the back of one post to inspect the sugar, and left it at that. The following day, 25th July, continued very hot, so I tried another spot in the evening on the moors with sugar; but it turned very chilly, and no moths appeared.

The following night I returned to the same place, which had a convenient draw-in from the road, and put up the m.v. lamp, also sugaring well away from the light. At 11.50 p.m., with the temperature down to 45° F., my first male *assimilis*, in perfect condition, alighted on the sheet. There were also a few variable *D. festiva*, *C. graminis* and an odd *P. interrogationis*. Sugar nil. On the 27th, I sugared about 150 posts across the moors, and again was not rewarded by a single species. On this occasion I had carried my pressure lamp some distance from the car, and after priming it with methylated spirits found that the pressure screw had dropped out in the heather; but fortunately I had a hand torch with me. One advantage this year was the absolute dryness of the moorland, and rarely were gum-boots required. Having nothing at sugar, I returned to my usual spot and put up the light. Although the temperature had been in the eighties during the day in the valley, it was down to 45° by 2.0 a.m. and was decidedly chilly, but had its good points, by the fact that the myriads of midges, which persist in aggravating the collector at work, had subsided. There were a few more moths flying than the previous night, and I was rewarded once again by a male *assimilis* at 1.50 a.m., but in not quite such good condition as the first capture.

The following night there was an improvement in temperature by 6° at the start, dropping to 48° F. at 2.0 a.m., with much cloud. There were definitely more moths flying, but mainly dark *A. monoglypha*, *P. interrogationis*, *C. graminis*, *D. festiva*, *L. varia* (*strigula*), *C. pisi*, *C. elinguaria* in its unicolorous forms, *P. affinitata*, *C. immanata*, *L. populata*, *L. prunata* and *E. caesiata* ab. *annosata* Zett. The night of the 29th July did not look promising, being bright and starry and slight dew, with temperature 41° F. at 12.20 a.m. and still dropping. Only a very few common Noctuae and Geometers arrived on the sheet.

My last night at Dalwhinnie appeared to be excellent with a slight westerly wind, and at 12.20 a.m. the temperature stood stable at 56° F., but contrary to all expectations it produced little, no moths coming into the light, and sugar, as on all previous nights, was useless. I was very pleased, of course, to get at least two *assimilis*, but for the seven nights' work the results were not very gratifying.

The following day, 31st July, we carried on northwards to Forres, Morayshire, and after dinner reconnoitered in the Culbin Sands area, but owing to the risk of fires, the final gate to motorists had been closed to the public. However, I walked for half a mile to the dunes over rather awkward ground, which as readers may know is now planted with small conifers, having brushwood placed between them on the sand for protection. Before 1900, it was mentioned in the *Record* by a collector that these sands were difficult to work, so I decided to select a section near the Findhorn River which was nearer to Forres.

The following day I caught a number of *E. aethiops*, flying in Altyre Woods, and in the evening I put up some sugar on a number of trees which I found bore recent sugaring, and also the m.v. lamp by the riverside. I found that the temperature throughout the whole of the week was fairly constant about 60° F. Sugar produced only one moth, *L. typica*, but the light was much better here than Dalwhinnie. Being a southern collector, I was pleased to get four species, new to me, viz. *E. paleacea*, *A. depuncta*, *P. bractea* and *E. cursoria*, the latter from ragwort at Findhorn. The *bractea* was unfortunately fairly well worn, and I was not able to get a female for eggs. *E. paleacea* and *A. depuncta* appeared to be just emerging. *T. janthina* was certainly the commonest moth on the sheet. Other noctuae seen or taken were *E. tritici*, *A. ypsilon*, *L. varia*, *T. comes*, *T. pronuba*, *A. xanthographa*, *A. baja*, *A. triangulum*, *A. c-nigrum*, *D. rubi*, *O. plecta*, *P. meticulosa*, *D. oleracea*, *C. graminis*, *L. testacea*, *A. monoglypha*, *A. secalis*, *M. literosa*, *H. oculea*, *H. micacea*, *L. conigera*, *L. pallens*, *C. clavipalpis*, *B. viminalis*, *C. trapezina*, *C. icteritia*, *P. chrysitis*, *P. pulchrina*, *P. gamma*, *A. tripartita*. *P. gamma* was not common, and I saw only three the whole week.

I had one night in Darnaway Forest with poor results from light and nothing from sugar. One amusing incident occurred near the Findhorn river, which I should like to relate. At approximately 1.30 a.m. whilst watching for a *paleacea* which had flown in and out from the sheet, I observed a figure loom from the trees into the rays of the m.v. lamp, and as it approached very unsteadily I realized that we had to contend with a very drunken man. When he eventually arrived by the sheet I warned him of breaking the lamp, to which remark he replied, "You think I'm drunk?" Wishing to humour him, I answered that I did not think so, but just wished him to know that if he fell on the lamp the hot mercury therein might be released and possibly blind him. He then proceeded without further words to stretch himself full length on the sheet, and with his fingers gently caressing the wing of a large *A. caja* which was resting on the electrical choke, remarked that God had made all these little furry creatures for some particular reason not known to himself and that he did not know what I did with them. So I pointed out that I had a hobby of collecting and displaying them in cabinet drawers, and no doubt he had a hobby of some sort, to which he instantly replied that his hobby was drink. I just said, "Quite". I then pointed out that he was preventing the light from attracting the moths from one side (thinking of my escaped *paleacea*), but this did not bother him a lot, and he proceeded to break into poetry, by reciting Robbie Burns perfectly for ten minutes.

Meanwhile my wife and I were casting glances over his recumbent figure, wondering how we could get him moving. I suggested that as he was a forrester on the Culbins he would have to be up early; but he just casually said that he was due to start work at 5.0 a.m. Thinking no more about such distasteful things, and forgetting his recent recitation, he told me I should read the bible. I replied, "How do you know that I don't?". This confused him somewhat, whereupon he proceeded to quote quite expertly many verses, and then, staggering to his feet, told me I should preach the gospel to the people at my hotel in the morning, on the lines of Billy Graham. He then returned to Robbie Burns, quoting at length for another ten minutes, when my wife suddenly interrupted his poem, stating we should now have to turn off the light. He looked at her rather quizzically, and without more ado, wished us 'gud neet' and turned unsteadily towards his way home along the river path, zig-zagging from side to side until he disappeared into the darkness. Alas *paleacea* did not return! I did, however, see our visitor once again going to the public bar of our hotel, and upon enquiring was told by our hostess that he was quite a character, and I well believe it.

Beating for larvae produced a few Prominents from birch, and an afternoon's trip to Blair's Loch in Altyre Woods enabled me to collect some two dozen pupae of *N. typhae* from the edge of the loch. They have since emerged, but do not appear to be very different from the typical insect, perhaps a shade redder in the males.

Summing up the fortnight's work, I would say that the moths appeared more plentiful in Scotland in comparison with collecting in Sussex this season, and considering the perfect weather conditions this year, I suppose one could have expected a much better catch.

65 Cranmer Avenue, Hove, 4.

Notes from East Anglia

By the Rev. G. A. Ford.

Little work has been done in the Fens this year, though a few visits were paid to the Sawston area. Very little was seen on the first visit in spite of ideal weather, and on later occasions *Arenostola fluxa* Hb. (*helmanni* Evers.) was about the only species of interest noted—still in some numbers. Visits to the Breck area were also disappointing. *Emmelia trabealis* Scop. (*sulphuralis* L.) seems to have quite disappeared from the only locality in which I have ever found it. *Anepia irregularis* Hufn. larvae seemed very much reduced in numbers. *Scopula rubiginata* Hufn. was not seen at all. A good locality for *Lithostege griseata* Schf. has been spoilt and only a few were turned up by day in a much less promising spot. I paid no night visits to the area, but no doubt *Heliophobus albicolon* Hb. and *Agrotis vestigialis* Hufn. are still to be obtained. Altogether the prospect for the future does not look too bright.

However, the use for the first time this year of a m.v. lamp at home has shown that in spite of heavily cultivated land and chemical sprays, now used increasingly, there is still plenty about, and many species of considerable interest.

I have run an ordinary trap with 100-watt bulb for nine years and so have a good idea what to expect; thus it is of interest to note species attracted by m.v. but never taken at the ordinary form of light. (I have tried electric, paraffin vapour and oil, also a carbon filament bulb—a real antique, black with age!).

In the following list 'A' denotes not taken in the parish before (in any stage); 'B' new to light; 'C' new to my East Anglia area (in my own observation):—

TRAP COMMENCED 1ST JULY 1955.

First appearances noted only.

July 1 *A. prasina* Schf. (A, B, C)
H. conspersa Schf. (B)
T. ocularis L. (B)
S. ravida Schf. (A, B, C)
,, 11 *L. cucullina* Schf. (B)
,, 20 *A. aceris* L. (B)
H. furcula Cl. (A, B, C)
,, 26 *Z. pyrina* (B)
,, 29 *E. cuculata* Hufn. (B)
**P. vetulata* Schf. (A, B)
C. ligustri Schf. (A, B)
Aug. 1 *L. quercus* L. (B)
,, 5 *Z. subtusa* Schf. (A, B, C)
A. sylvata Scop. (A, B)
Aug. 11 *B. viminalis* Fab. (A, B)
**E. repandaria* Hufn. (A, B)
C. affinis L. (A, B, C)
,, 12 **A. phragmitidis* Hb. (A, B)
,, 14 *C. galii* (A, B, C).
?*C. aerugula* Hb. (A, B, C)
,, 15 **P. festucae* L. (B)
,, 19 *P. porphyrea* Schf. (A, B)
P. monacha L. (A)
C. diffinis L. (A, B, C)
,, 20 *N. dromedarius* L. (A, B, C)
,, 24 *A. pygmina* Haw. (A, B)

Species marked with an asterisk were unexpected, seeing that the nearest fen is at least six miles away. After this promising start the only recent captures have been mostly vast numbers of *A. c-nigrum* L., *P. gamma* L. and *T. pronuba* L. But something more of interest may arrive yet.

I have queried *Celama aerugula* (*centonalis*) as possibly it is *Nola albula* Schf.—anyway a good capture.

Balsham Rectory. 31.viii.1955.

Thoughts on Reading Dr Ford's Book "Moths"

By W. E. MINNION.

When Ford's "Moths" appeared early this year it met with a very favourable reception from reviewers, and most lepidopterists who had eagerly awaited its publication have no doubt read it at least once and formed their own impressions. One wonders whether our hopes have been fulfilled or whether many readers are left with a feeling of disappointment.

It seems, surely, that the book is written for the experienced entomologist and not for the beginner or general reader. In this it appears to be out of step with the New Naturalist Series, whose aim is "to interest the general reader in the Wild Life of Britain". One gains the impression too that the author would have all lepidopterists devote all their activities to those particular lines of research in which he himself is especially interested and in this connection his belittling of collectors, already adequately disposed of in *Butterflies*, seems very much overdone. In fact by the time one reaches the chapter on Industrial Melanism it seems almost that we, the collectors, are entirely responsible for the lack of knowledge of the subject among the geneticists and other experts! It is therefore amusing to discover that the lack of knowledge of the distribution of moths in, say, Ireland is also the fault of the collectors for not having collected there.

There is little doubt that further invaluable researches as suggested by Dr. Ford will be undertaken by "amateurs" as a result of reading this book; but it should be remembered that to the majority of us moth hunting is a hobby to provide relaxation in leisure hours and each individual will no doubt proceed just as he feels inclined in order to get the maximum pleasure out of his activities. The moment some particular line of enquiry becomes a tie or a burden then its value as a means of recreation is lost.

This book could, and should, prove of very great value if readers will put forward their own views on the various aspects of our hobby which are considered and discuss them fully. Free exchange of ideas is invaluable and it is hoped that the pages of the *Record* will be regarded as a suitable medium for such discussion.

In reading the book numerous statements raised doubts and queries, and other entomologists' notes would be appreciated; for example on page 171 it is said that the July Highflyer, *Hydriomena furcata* Thun., is largely day-flying. It is difficult to recall seeing this moth by day except when disturbed by beating, etc., though it occurs in considerable numbers along hedgerows and around bushes after dusk and it is a frequent visitor to light.

On page 141 the Chalk Carpet, *Ortholitha bipunctaria* Schiff., is cited as an example of a species strictly confined to chalk and limestone. This appears to be too definite as the moth can survive in other habitats, as for example the shingle bank along the seashore at Lancing. The chalk is not far away but this nevertheless indicates at least a greater tolerance than the statement in the book would suggest.

The reference on page 174 to the Annulet, *Gnophos obscurata* Schiff., is interesting. The white form from Sussex chalk, the reddish brown one from Devon and the blackish ones from the peaty soil in Surrey are suggested as forms which have evolved in isolation. Between the Surrey locality and those of Sussex and Kent where the extreme forms occur lie the North Downs. On these chalk hills one rarely meets with the white examples one might be led to expect, but a whole range of intermediate examples from light to quite dark grey can be obtained at least on that section of the Downs between Reigate and Dorking. It seems at least a possibility that the races from Surrey and Sussex are not so isolated as to have evolved entirely separately and that the intermediates on the North Downs provide the link between the extreme examples.

Reference is made on page 176 to *Eupithecia intricata* Zett. and the race *arceuthata* which is quoted as occurring on juniper on the Chilterns in Buckinghamshire. Surely *arceuthata* is now more frequently associated with introduced species of *Cupressus* growing in gardens.

These are a few items connected with field observations. One reviewer draws attention to a misnamed moth on a plate. Another example is the gynandromorph illustrated on plate 12 as *Operophtera brumata* L. which is far more like *Erannis marginaria* Fab. than *brumata*.

One of the very interesting sections of this book is that devoted to melanism. In this connection it seems surprising that the impression should be conveyed that the solution of the problem of selective elimination should depend upon the evidence of one experiment with *Biston betularia* L. For this experiment moths were apparently placed on tree trunks. Are tree trunks the normal resting place of this species? It is a very plentiful moth but it is very rarely in evidence in daytime and not usually found freely on tree trunks. Again, if tree trunks were selected by the moths themselves as resting places would not the typical ones seek the lighter patches of the trees? Birds are very quick to appreciate a free feed as users of m.v. will know well and it would seem that unless the moths were allowed to select their own hiding places under natural conditions the value of the experiment is somewhat reduced. The recovery of marked specimens released by night seems a more convincing method of finding the extent of the selective elimination whereas the other experiment served to demonstrate one probable method.

If this selective elimination by birds is of such importance one would not expect to find, in an area with little or no soot contamination of tree trunks, 85 per cent of the local *betularia* being *carbonaria* with 7½ per cent each of *insularia* and type *betularia*. Yet this is the position in at least one area where typical examples would certainly be less conspicuous on tree trunks than would *carbonaria*.

The experiments referred to are undoubtedly a great contribution to our knowledge, but one would expect that the experimenter himself would only regard them as part of a series directed towards the eventual solution of the problem.

An Entomologist in Argentina

XV. Short Trip to La Rioja

By Kenneth J. Hayward, D.Sc. (Hons.), F.R.E.S.

When describing some experiences of mine in La Rioja in the second of these articles, I mentioned that for many years I had wished to revisit a small valley in the Velascos known as El Duraznillo, and it had also been my constant desire to explore at leisure the Quebrada de Cébila in that same province, a place I had first seen during our winter expedition in search of locusts in 1933. Although I had subsequently passed through this latter gorge on several occasions, I had never had the opportunity to stop and collect and an excursion planned to this end had fallen through for lack of transport. Therefore when I was invited to join a party of zoologists who with Mr. Alberto Breyer were planning to spend some ten days collecting in La Rioja during October of 1954, I hastened to suggest that these two spots be included in our itinerary.

We assembled at Mr. Breyer's estancia at Guayapa near Patquia where we remained for four days, the last of which was devoted to an excursion to El Paganzo at the foot of the range of that name. It had been a hard winter followed by lack of spring rains, and in any case October is too early for very productive collecting in these parts, so we did not find many insects, in fact I do not think we obtained a thousand specimens between us during the whole of the trip. At Guayapa

I found a few bushes of *jarilla macho* (*Zuccagnia punctata*) in flower round which when the sun shone small bees and wasps were active, and by air-sweeping around them about five hundred and some specimens of a bruchid beetle with flabellate antennae were netted. The most surprising discovery was however the finding of a *Pseudomeloë* on the common *jarilla* (*Larrea*). Our work at night with a pressure lamp was not very successful; when I returned to Guayapa later in the month and the weather had become warmer, night collecting was to give me a considerable amount of material including nearly five hundred 'micros' with a wide range of species, some of which will undoubtedly prove to be undescribed.

In many places in the desert, especially along the foot of the mountains or where there are salt marshes, one comes across small areas known as '*ojos de agua*' where there is a seepage of water from some underground source, usually brackish and often very saline. Where these exist small farms of '*puestos*' (I cannot think of an equivalent English term), have sprung up, generally with their herds of goats and if the water is sufficient, a few small fields of barley or clover or perhaps even maize. Such a spot was El Paganzo.

The day we visited this place we were favoured with warm sunny weather but we found few insects. In a sheltered corner alfalfa was growing surrounded by a tangle of flowering weeds where I saw a few common butterflies; it appeared a promising spot for future investigation when the season was more advanced. As is usual in such places there were great numbers of pigeon of two or three species, either feeding on the ground or resting vigilant on the branches of surrounding trees. On the xerophilous vegetation I found a few scale, one new to me, but these with a couple of shells were the sum of my collecting.

From Guayapa we passed in our lorry to the city of La Rioja where we spent a night before setting out early for El Duraznillo. To my intense disappointment the road deteriorated to such an extent as we neared our objective that further progress became impossible and we were compelled to turn aside to a small village I had not previously visited. Las Cañas lies in a deep bowl-like hollow at the bottom of which are some fields, the sides of the valley being covered with sparse open forest, more verdant in the vicinity of some small springs whose water trickles down the hillsides. We camped on the western slopes on a small eminence that gave us a fine view over the valley and spent the afternoon in a rather unfruitful search for insects. In the forest I found practically nothing and did little better in the fields below, but these latter were interesting in showing the considerable variation of a *Malva* that in addition to a pure white flower was present in at least five distinct shades of colour. Towards nightfall clouds began to gather and a cold wind got up so that our lamps attracted only two or three hardy moths. About midnight I was awakened by a light drizzle falling on my face and this continued for some hours whilst snow fell on the higher ranges. It was a long time since I had passed so cold a night and I looked forward to the first signs of dawn.

It had been our intention to remain and collect in this neighbourhood till late afternoon before continuing on to Chumbicha where we were to sleep, but a defect in the lorry necessitated a return to La Rioja. This being the case and not wishing to lose what would probably be my last opportunity of examining more closely this corner of the province, I set out early with another of our party to walk back along the road. It was cold and overcast and nothing was flying, but in the couple of hours or so that elapsed before the lorry overtook us we found a number of scale insects and I was able to make a very fair estimate of what one might expect in this district.

The repairs to our lorry effected, we had an uneventful journey to Chumbicha, stopping only once on the monotonously straight road that lay for all its sixty miles across a level *jarilla*-covered plain.

It was raining slightly the following morning when we started out for the Quebrada de Cébila and the day looked unpromising, but after a short time it began to clear and thereafter the weather was bright and sunny. This *quebrada*, which is about twenty miles long, winds slowly upwards between steep densely wooded slopes, the trees laden with parasitic growths, whilst along its narrow bottom a small stream, dry at the moment and which is crossed more than forty times, disputes with the road the right of way. We stopped several times with a long halt at midday, and though it was everywhere very dry there was abundant evidence that a return to this gorge during the summer months would be productive of surprises. I brought away a number of *Tillandsia* air-plants for our gardens, the trees in the centre of the Quebrada being bright with the small red flowers of one of these. The Begonias I had expected did not materialise.

Passing through Mazán we reached the thermal springs of Santa Teresita towards dusk. I had first visited this spot during the winter of 1933 when it was still unpopulated and known as Aguas Calientes. The forest had then consisted of hundreds of magnificent age-old *algarrobos* (*Prosopis*) and near the river, from whose shallow waters here and there rose wisps of steam, were between thirty and forty of the largest *chañares* (*Gourliea spinosa*) that I have anywhere encountered, giants of their kind. Unfortunately during the last few years most of these fine old trees have become the victims of the sawmills now established there and though the forest still remains, its glory has departed. After darkness fell we lit our lamps and rather to my surprise they attracted a considerable number of micros.

Between this place and Aimogasta, centre of one of the principal olive growing regions of the country, the road crosses sandy desert where the vegetation is sparse and consists almost entirely of *jarilla*, and we broke our journey only once when we saw some flowering *Cassia aphylla* from whose frail yellow blossoms a large number of two bruchid beetles were collected. From Aimogasta we continued to La Rioja, following a little used route, the country varying in no way from that traversed during the morning till towards evening we began to wind our way through some low hills where cacti were everywhere in flower, one magnificent large trumpet-shaped yellow blossom being especially attractive. In La Rioja the party broke up, myself and Mr. Breyer returning to the estancia whilst the remainder entrained for Buenos Aires.

Back at Guayapa with the weather becoming warmer, many insects came to light and as already mentioned we captured a large number of micros. These had an additional interest for me as it has been possible to compare them with about two hundred specimens I took in the same place back in 1931 and which had only recently come to light, forgotten amongst some stored material.

In this series of notes I have dealt briefly and more or less in chronological order with the separate periods and more important explorations that have comprised my entomological experiences in Argentina. Nevertheless when I look back over the thirty odd years I have spent collecting in this country, a land more than a third the size of Europe and where one encounters almost every conceivable type of terrain, from sea level to the high Andes, from Capricorn to the Antarctic, endless small incidents come to mind that have found no place in these records, yet which have added enduring pleasure to the memories of the years.

Because my recollections are principally of the birds, I have made no mention of a holiday spent in the Chaco Santafecino when, camping, we lived by rod and gun, rising before the dawn to fill the larder and thereafter till nightfall walking and exploring, collecting insects in sunny forest glades or content to watch the bird life to be found in such exuberance in the laguna-studded sawgrass plain that lies between the Paraná and the lesser Paranaminí. In this area are innumerable pools, some deep and permanent where hyacinth and water lilies grow and sometimes the giant *Victoria cruziana* on whose tray-like leaves coiled water boas sun themselves, others mere hollows that having filled with water in time of flood will slowly dry up, leaving their struggling harvest of small fish to the mercy of stork and heron and the ever present vultures. Here were the communal webs of *Eriophora bistriata* measuring ten or twelve square yards or even more and often spun across the forest paths, indescribably beautiful when seen at sunrise with the dew still on them when every droplet was a bead of shimmering gold, but less attractive when one accidentally walked into one of them during the hours of darkness to emerge from the tangle entwined in sticky thread and covered with the red or orange spotted owners. These great webs are composed of very many smaller webs conjoined and are occupied only from dusk till dawn, at which hour the spiders retire to some shady corner where they pass the daylight hours in a compact ball-like mass. When sunset approaches they begin to move and suddenly as though at some given signal each individual hastens to his private web and, repairing any damage, settles down to await its prey; thereafter woe betide any spider that trespasses beyond his own domain.

Many have been the week-ends spent in the open, sleeping beneath the stars, when I have lain beside the rivers listening to the noises of the forest night, the hoot of owls or startled cry of bird or mammal, the branches above me black against the starry sky or lit up by the fitful flicker of the fire, the murmur of the passing waters broken by the plop of rising fish.

There was also an unforgettable morning when I gazed down on to the *estero* they call the Indian's Bed, an expanse of reeds and rushes in whose centre was open water and along whose verge were mud flats. A quarter of a century has not dimmed my recollections of this marsh which in the general drabness of the surrounding landscape looked startingly green and over which wheeled incessant flights of duck and teal of many species and along whose wide flat beach fed snipe and plover, stork, ibis, heron and flamingo and a host of others, whilst the air was filled with the babel of their calling. It was the wild in all its primitive glory as it must have been in those far off days when only the Indian roamed the land.

If in my reminiscences I have dwelt too much on ornithology my excuse must be that the birds have been my constant friends and observing them has added infinite and lasting joy to what might otherwise at times have seemed too much like work. Much that I have written has been descriptive of the country, its forests, plains and mountains, its rivers and the great tracts of xerophilous scrub that occupy so much of Argentina, but in this I may perhaps be forgiven, since it is often to the surroundings that collecting owes so much of its attraction.

If these articles have led to a better understanding of the problems we have to face and of the possibilities offered to collectors who may care to visit us they have served their purpose. In their preparation I have travelled anew the highways and byways of Argentina and I only hope that their reading has not proved too tedious.

Current Notes

The Nature Conservancy continues to 'declare' new Reserves, no less than five being announced on 27th September. Three of the new Reserves are in England (two in Lancashire, one in Cheshire) and two are in Scotland (Shetlands). Additional territory is also announced for the Reserves at Castor Hanglands (Northants) and Kingley Vale (Sussex).

Roudsea Wood Nature Reserve is ten miles west of Grange-over-Sands, Lancashire, and comprises 287 acres. This area is described as being "one of the most varied woodlands in the British Isles, with a rich flora and fauna". The main part of the wood consists of two parallel ridges, one of limestone and one of slate. The limestone ridge is crowned by yews with mixtures of oak and ash on its sides. The slate ridge is a typical Lake District oak wood and between the ridges there is a small tarn with fen plants and fen insects. It is the only known British locality for the sedge *Carex flava*. There is also "a wealth of sloe, alder, birch and other shrubs and a correspondingly great variety of insect and bird life". On the seaward side Roudsea Wood slopes down into the Morecambe Bay salt marshes, and here the transition from salt marsh to woodland can be studied. On the landward side lie the Holker mosses. In addition to the usual plants and insects there are roe deer, and occasional fallow and red deer.

The acreage of Wybunbury Moss in South Cheshire, which also becomes a Nature Reserve, is not given and the Conservancy states that "the present declaration is only part of the land ultimately intended to be within the Reserve and negotiations for an additional area are in progress". The Moss is described as "an unusually large example of a *Schwingmoor*, a type of bog not before described in Britain". It has been formed in a steep sided kettle-hole in sandy glacial material. At the centre of the bog there is only a thin crust of Sphagnum peat 6-10 feet deep floating on water, but at the margin deposits of both Sphagnum and fen peat have accumulated to form a solid layer over the glacial sand. The margins carry a fen community with sedges such as *Carex paniculata*, but the central area has a typical bog flora carpeted with Sphagnum species in which *Erica tetralix*, *Oxycoccus palustris* and *Andromeda polifolia* are common.

North Fen Nature Reserve, also of undefined acreage, is on the north side of Esthwaite Water in the Lake District National Park. It is mainly woodland which is beginning to show signs of Sphagnum bog development. The vegetational succession is reedswamp, mixed fen, and open carr followed by closed carr dominated by *Salix atrocinerea*.

The additional territory now added to Castor Hanglands Reserve bring the total area of the Reserve to 113 acres and includes the western portion of the wood which adjoins Ailsworth Heath. "The whole area", says the communiqué, "has long been known for its rich insect life and particularly for butterflies such as the Black Hairstreak and the Chequered Skipper". Access to the Reserve is by permit, and permits are also required for collecting specimens of any kind. Applications for permits should be addressed to the Regional Officer for East Anglia, The Nature Conservancy, 6 Upper King Street, Norwich.

"In 1952 and 1953 the Nature Conservancy"—we quote the press notice—"declared an area of approximately 200 acres at Kingley Vale which included the famous natural yew wood and the chalk grassland on the downland slopes, and a small area of heath overgrown by scrub on the plateau of Bow Hill. The present declaration adds a further 17½ acres and completes the Reserve." There will be no restrictions on public access, but anyone wishing to collect specimens of animals or plants will need a permit.

The two Reserves in Shetland are of interest to ornithologists rather than to entomologists. One of them, Hermaness, is the northernmost of all the British Isles—"closer than the Southern tip of Greenland to the North Pole"—and carries a rough moorland with a blanket bog on gneiss. It extends to 1,071 acres, all but 31 being on the mainland and including many lochans and several miles of high sea-cliffs. The other, Noss Nature Reserve, is "one of the most spectacular islands in Europe". It is uninhabited and extends to 774 acres, mainly rough moorland.

The Annual Exhibition of the South London Entomological and Natural History Society will be held at the apartments of the Royal Society in Burlington House, Piccadilly, on Saturday, 29th October. Visitors will be most welcome and both members and friends are asked to make a special effort to bring exhibits. As in previous years, space will be available for a display of natural history photographs, paintings, drawings and lantern slides. The exhibition will be open from 11 a.m. to 6 p.m. The Annual Dinner of this Society will be held at the Waldorf Hotel, Aldwych, the previous evening, namely Friday, 28th October, at 6.30 for 7.30 p.m. Dinner tickets are 20s. each and day dress will be worn. Applications for tickets should now be made to the Hon. Secretary of the S.L. Ent. & N.H. Soc., 14 Rochester Row, London, S.W.1.

DIPTERA

Chrysops melicharii Mik. in 1955

By P. A. H. MUSCHAMP.

This is the fourth summer that I have captured the above-mentioned fly on the reeds of the Lake of Muzzano and have confirmed my observations (see *Ent. Rec.*, **65**: 28). The female does not bite, its food consists of water; it never leaves the reeds and remains low down on the stems. I have never taken it on the wing.

I removed some a few yards and they flew slowly back to the lakeside, but when I removed some a little further, they dropped to the ground and hid in the grass.

This year, so late was the season that I found only males and no two of them were exactly alike; a few of them belong to the genus (!) *Heterochrysops* Kröber which only shows what a mistake it is to split genera without sufficient cause. I give below a rough description of the eight main forms found (all males):

(a) *Thorax*: 3 black longitudinal stripes, the middle one narrowest.
Abdomen: tergites 1, 2 and 3 pale lateral rectangles.
Sternites pale with three black dots on each segment.
Wing: apical half black, clear patches in all cells.
Legs: yellowish, knees narrowly black, tarsi black.

(b) *Thorax*: black with very narrow pale stripes.
Abdomen: tergites fifty per cent pale.
Sternites 1 and 2 pale yellow with black central dot.
Wing: nearly all black.
Legs: basal half femora, knees and tarsi all black.

(c) *Thorax*: fifty per cent pale, scutellum white tipped.
Abdomen: thirty per cent yellow bands, venter all dark.
Wing: two-thirds clear.
Legs: black, tarsi brown.

(d) *Thorax*: three broad black stripes.
Abdomen: tergites thirty per cent yellow.
sternites yellow with three black dots.
Wing: four-fifths black.
Legs: reddish yellow, knees narrowly black, tarsi third pair black.

(e) *Thorax* and tergites as in (d), but sternites with basal two-thirds blackish.
Wing: pale in centre of all cells.
Legs: yellow, brown at knees.

(f) Very pale specimen.

(g) *Abdomen*: yellow with two sharply defined triangles on each segment.

(h) *Thorax*: central black stripes bisected by pale line (five black stripes).
Abdomen: tergites continuous black distal triangle.
sternites narrow black bands.
Wings: blackish.
Legs: very pale.

These are all that I took this year; male aberrations taken in previous years have included:—

(i) *Wings*: pale brownish.
(ii) *Thorax* and *abdomen* all black
(iii) tergites 1 and 2 yellow with tiny black triangles, others all black.
(iv) sternites 1 and 2 all yellow, others all black.
(v) sternite 1 with a single black dot.
(vi) tergites yellow with small equal black triangles.

I netted during June on the reeds two very rare *Eulalia*, *E. felina* Panzer and *E. limbata Meigen*.

"*E. felina* manque absolument de distribution géographique précise. N'a été trouvé que par exemplaires isolés."

"*E. limbata*: France meridionale (rare) Afrique septentrionale."

I also took a less rare meridional species, *Lasiopa villosa* Macquart.

I have still a large number of *Chrysops melicharii* to give away to those desiring them

Leicester Museum.

Notes and Observations

Parnassius apollo L. at Folkestone.—I think you might be interested to hear that on the 3rd August this year I caught a *Parnassius apollo* at the Warren, near Folkestone, Kent. At the time of capture its flight was slow and somewhat heavy. I have already shown the specimen to Mr. A. M. Morley, F.R.E.S., and it is now on show at the Folkestone Museum.—Peter Scott, 7b Julian Road, Folkestone. 9.ix.55.

[This is an untimely end for this souvenir of some local lepidopterist's alpine holiday. We fear there can be no thought of this insect having reached this country of its own volition; the handsome blue and black larva with its orange-red spots is a thrilling beast to find, and its habit of feeding on *Sedum* and *Saxifraga* species would at once suggest that the rock garden at home would supply its bodily wants and make it reasonably easy to rear. Having reached the perfect stage, its captor, having no place for it in his cabinet, would hesitate to kill it in cold blood and may have decided to free it to live out its allotted span.

Lhomme gives details of many local forms of this insect, but records no lowland captures for France (and he usually gives a long list of localities recorded by his various correspondents). So it is hardly to be thought that it should suddenly take on migratory habits which would bring it to this country.—Ed.]

Amathes depuncta L. at Penrith.—Because of the paucity of records of the species in Cumberland it might be of interest to record the capture of three specimens of *Amathes depuncta* L. at my m.v. trap in Penrith. Two of the moths were taken in July and one in August 1955.—W. F. Davidson, 9 Castlegate, Penrith. 3.ix.55.

Loxostege sticticalis Linn. in Cumberland.—A single specimen of *Loxostege sticticalis* occurred at my m.v. trap in Penrith on 12.viii. 1955. Canon G. A. K. Hervey took a total of about twelve in his trap at Great Salkeld, near Penrith, on and around the same date, the largest influx being seven specimens on the night of the 12th August.

The appearance of this Breckland species in the extreme north of England is quite remarkable.—W. F. DAVIDSON, 9 Castlegate, Penrith. 3.ix.55.

HYDRAECIA PETASITIS DBLD. AT PENRITH.—I have had four specimens of *H. petasitis* in the m.v. trap recently. I cannot think of any of the foodplant within a mile.—W. F. DAVIDSON, 9 Castlegate, Penrith. (*in lit.* 3.ix.55).

CELERIO GALII SCHIFF. IN CHESHIRE.—A fully grown larva of *C. galii* was found on the roadside near Whitegate on the afternoon of 18th September 1955. Willowherb was growing in some profusion nearby.—J. D. C. BOYES, 'Wimborne', Millfields, Nantwich, Cheshire. 18.ix.55.

EMERGENCE OF CALOPHASIA LUNULA HUFN.—I have bred a few *C. lunula* from larvae found at Dungeness. They emerge in the evening, mostly about dusk, and expand their wings with astonishing rapidity. I mention it because I have not heard anyone else remark upon it. One which I timed emerged at 9.10 B.s.t. on 23rd August (the pupa-case split at 9.08). At 9.22 the wings expanded *suddenly* in less than half a minute, like somebody blowing up a balloon! The wings-over-back attitude was assumed and maintained for 12 minutes, and the normal resting attitude was adopted at 9.35. As drying completed, the wings were held more tightly round the body, otherwise the insect did not move. The total time from emergence to normal attitude was 25 minutes. Is there any other species as quick as this?—B. GOATER, 71 Grant's Close, London, N.W.7 (*in lit.* 5.ix.55).

PROPORTION OF FORMS OF BISTON BETULARIA L.—When I arrived here in the early 'twenties typical *betularia* was undoubtedly the preponderant form of this species. Rearing from wild larvae disclosed a steady increase in the proportion of the form *carbonaria* until the outbreak of war by which time the relative numbers appeared stabilised, *carbonaria* outnumbering *betularia* by approximately 2-1.

During the past two seasons I have counted specimens of the species appearing at my m.v. lamp (it is not a trap) and the result is appended.

	Total Numbers	*betularia*	*carbonaria*	*insularia*
1954	95	35%	60%	5%
1955	133	37%	58%	5%

The moth has a long season: it first appeared this year on 11th May (*insularia*) and the last appearance was 9th August (*betularia*). Typical *betularia* appears earlier in the evening than *carbonaria* as a rule, and this may affect the relative numbers in midsummer as the lamp is always extinguished at midnight.—A. W. RICHARDS, Farnborough, Hants.

AUGUST MIGRANTS AT WESTON-SUPER-MARE.—It may be of interest to record the following moths which were taken by me in my moth trap in this garden during last August:—*Celerio livornica* Esp., 21st August; *Eurois occulta* Linn., 21st August; *Heliothis peltigera* Schiff., 22nd, 23rd (2) and 26th August; *Nycterosea obstipata* Fab., 6th and 26th August; *Margaronia unionalis* Hübn., 18th, 19th and 20th August.—C. S. H. BLATHWAYT, 27 South Road, Weston-super-Mare. 5.ix.55.

EUROIS OCCULTA L. AND THOLERA POPULARIS FAB. IN THE SHEFFIELD AREA.—I took a female *Eurois occulta* L. while collecting with the m.v. lamp on one of the Sheffield moors on the 25th August. Its condition was not very fresh, but she has not yet laid eggs, for which purpose she was kept. She is of the pale southern form. Another, a very worn male of the same form, was amongst the insects in the trap in my garden this morning.

I have also taken two *Tholera popularis* Fab., one on the moor and one in the trap. It is, of course, a widely distributed and common moth, but I have never seen it before in the Sheffield area.—W. REID, 6 Whirlow Park Road, Sheffield, 11. 31.viii.55.

CUCULLIA ABSINTHII LINN. IN CHESHIRE.—I took a fresh male *C. absinthii* L. in my m.v. trap in my garden on the 17th July 1955. As far as I know, no wormwood grows in the vicinity, but there is a small patch of mugwort situated about a mile from the house. No larvae have yet been found.—J. D. C. BOYES, 'Wimborne', Millfields, Nantwich, Cheshire. 18.ix.55.

A NOTE FROM SURREY.—While searching mugwort flower-heads for larvae of *Cucullia absinthii* L. last month I found three last-instar larvae of the Peppered Moth, *Biston betularia* L., which is abundant here, and one of the Gold-tail, *Euproctis similis* Fues. Of the *B. betularia* larvae one was of the smoky green form, the other two brown but smooth. Among my captures this year are a specimen of *Eurois occulta* L. at Wallington, at 'blended' light on 9th July (a female), and one of *Apamea scolopacina* Esp. at Watford, Herts., on 1st August (a male), also at 'blended' light.—P. G. TAYLOR, 83 Woodcote Road, Wallington, Surrey. 8.ix.55

NYMPHALIS ANTIOPA L. AT FOLKESTONE.—I took a *Nymphalis antiopa* L. in my garden here at 2 p.m. on 24th August. It is a female in good condition and was feeding on buddleia. I showed it to Mr. Morley, who suggested that I should report it to you for your records.—K. W. SELF, 53 Earls Avenue, Folkestone, Kent. 26.viii.55.

LYMANTRIA DISPAR L., MARGARONIA UNIONALIS HB. AND LOXOSTEGE STICTICALIS L. IN HAMPSHIRE.—The following captures at my moth trap in Alverstoke may be of interest:—16th August, *Lymantria dispar* L., a male in fine condition; 18th-19th August, two *Margaronia unionalis* Hb. and one *Loxostege sticticalis* L.—Rear Admiral A. D. TORLESSE, R.N., 18 Bury Road, Alverstoke, Hampshire. 17.ix.55.

BUTTERFLIES IN LINCOLNSHIRE, 1955.—The winter in my part of Lincolnshire was terrible. Snow drifts between Gautby and Horncastle were so deep that when a way was cleared through them our old baby Ford crept along with mountains of snow towering on either side. It was not until 12th April that I saw the first *G. rhamni* male in the Rectory garden. The first *A. cardamines* male was not seen till 25th May and I did not notice a female until I saw a good specimen in the garden on 22nd June. I saw a male, also in my garden, on 5th July, which seems very late indeed.

One *V. atalanta*, very worn, was seen in the garden on 27th June, which may have been a migrant. The only other migrants are the

Cabbage Whites, which have been plentiful, and a number of *Plusia gamma*. No *M. stellatarum* have been seen.

Mr. Kirk of Woodhall Spa reports a few *V. cardui* and tells me that he caught *C. palaemon* in a wood near Lincoln on 6th July, which again is late. He also noted a male snake fly, *Raphidia notata*, which he found dead on his window-sill. It is the first male he has seen and he believes this insect to be rare in Lincolnshire.

The wood nearest Gautby is Austacre Wood. It is known locally as 'Horse taker Wood' and a gang of horse thieves has been added to local legends. In reality the name is derived from Auster ager or southern field. The wood has been taken over by the Forestry Commission and a lot of hardwood has been felled and conifers planted. On a visit which I paid to the wood on 30th June I took *O. venata* (common), one *N. tages* (which seems very late), and some fresh *P. aegeria*. *C. pamphilus* was common. *M. tithonus* was not seen until 22nd July.

On the last-mentioned day I went again to Austacre and was delighted to find *L. camilla* in fair numbers. The chief sufferer from the Commission's work would appear to be *Thecla quercus*. The ash tree where I had seen it in numbers for some years past has been felled. For the first time I saw and caught a specimen of *A. aglaia*. There were three flying in a ride I had not previously walked along. I wonder what others think of Frohawk's assertion that this is one of the most difficult of our butterflies to capture?

A. sylvestris was flying on that day and one worn *P. icarus* was seen. *A. hyperantus* was also quite common. I was glad to see one *C. phlaeas* flying in a field at Minting: it does not appear to be common here. Mr. Kirk tells me that he went to Castor Hanglands on 8th September and that the main wood, which was felled in about 1943, is to be cleared again and replanted by the Forestry Commission. This, he says, will probably finish collecting there.

Some time ago I wrote a short note in the *Record* on the apparent damage the mason wasp *Osmia rufa* was doing to churches in the Wolds, where it was infesting sandstone. I have now seen this in Nottinghamshire too. Although I think the only solution is to renew the stone whose decay the bee makes manifest, I should like to hear what hymenopterists think about this matter.—Rev. PETER HAWKER, Gautby Rectory, Lincoln.

A NOTE FROM SOUTH DEVON.—At Teignmouth in South Devon a few June *Colias croceus* bred and produced a second brood in early August. Besides the local specimens in August a few *croceus* came over from the Continent. Altogether I have counted 69 *C. croceus* from Torquay to Bournemouth and Totland, Isle of Wight, of which 23 were seen in Devon. Males have been in the majority and the only *helice* was obtained on the Dorset coast.

On 20th August, between Bridport and Dorchester, there was an emigration of over 40 *Aglais urticae* and 10 *Vanessa atalanta*, moving south towards the coast. *Pieris brassicae*, *P. rapae* and *P. napi* have been coming over in large numbers to Torquay in July. The last good size migration was on 4th August when 128 *P. brassicae*, 88 *P. rapae* and 24 *P. napi* were counted between 1.15 p.m. and 2.30 p.m. The swarms of White butterflies have been noted by the local press, and greengrocers and growers have been complaining about the resulting filthy state of the cabbages.

This has been a poor year for migrant moths in quality but not in quantity. The first arrivals were a few *Nomophila noctuella* in April. One *Nycterosea obstipata* was found on a street lamp on 5th August. *Agrotis ipsilon* is at present very abundant and *Plusia gamma* has fallen back to second place for figures.

The hot dry weather and a remarkable absence of bats has made this year the best season since I have been collecting in Torquay. *Craniophora ligustri* and *Diarsia brunnea,* usually rarities here, were common locally in July. *Plusia iota* and *P. pulchrina,* and two *Cosymbia trilinearia* on 16th July, came to the lamps. One ♂ *Lithosia quadra* on 23rd July and one *Thera firmata* on 15th July (a very early date) also came to street lamps. *Lymantria monacha* was more common than ever before. One larva of *Apatele alni* was found pupating in a Torquay park on 11th August.

Near Teigngrace there was the usual June emergence of *Zygaena filipendulae* (wing span 30-35 mm.) which was followed in early August by a dwarf race with a wing span of 23-24 mm.

The last cold winter has greatly reduced the numbers of *Euplagia quadripunctaria* in Torquay. Cold winters take a heavy toll of the hibernating larvae, but the species generally increases in numbers after a mild winter.—A. H. Dobson, Millbrook Park Road, Torquay. 19.ix.55.

Breeding Celerio galii Schiff.—It is perhaps of interest to record the progress of the family of *Celerio galii* which I reported in last month's *Record.* Briefly, the time-table of the brood was as follows:

July 29—Capture of a ♀ at light.
,, 30—First eggs laid.
Aug. 7—Eggs started to hatch.
,, 12—1st skin change.
,, 14—2nd skin change.
,, 16—3rd skin change.
,, 19—4th skin change.
,, 25—Larvae started to spin up.
Sept. 13—Emergence of 2 imagines.

The young larvae went ahead at a great pace, and at the first change of skin very dark green forms, almost black, started to appear. More and more went dark at each change, until at the last all were dark. It was very remarkable how small the larvae were at this last change; it did not seem possible they could grow enough without shedding another skin, but somehow they managed it. The full-grown larvae were all a shining black, sprinkled, some thickly, some lightly or not at all, with yellow freckles, and along the sides were large yellow, pink or red spots. Heads and horns were almost crimson. One exception was a curious dirty lilac colour with matching head and horn and no freckles. Only an entomologist could really love such creatures; I confess I had every sympathy with my wife, who regarded them as somewhat revolting, yet suffered them without complaint in her airing cupboard.

For pupation, the larvae were given a couple of inches of dry bulb fibre. At this stage they galloped endlessly round at a great pace, occasionally stopping for a few mouthfuls. This lasted perhaps for two days, and then they spun large, loose cocoons on the surface, often roofed with a leaf of willowherb.

Larvae and pupae were never allowed to suffer a temperature below 70° F. Until the fourth instar the larvae were extremely healthy, but a virus must have been introduced with the food about this time, and a great many died soon after the fourth skin change. I tried the T.C.P. treatment, and may have saved a few lives, but after it the larvae never seemed to recover much vigour. I managed to get a few pupae, some a very good size too, but some are terribly undersized. Of the two moths which have so far emerged, the larger measures just over 2½ inches, while her mother must have measured a little over 3 inches before she damaged her wing-tips while egg-laying. A number of other pupae look like producing moths at any moment, and with the help of Mr. S. W. P. Pooles, who had eggs from the same female and was most successful in bringing up the larvae, I hope to get a good series and retrieve what at one time looked like being the greatest disappointment of my entomological career.—J. O. T. HOWARD, Wycherley, Deepdene Wood, Dorking, Surrey. 14.ix.1955.

CUCULLIA ABSINTHII L. IN SURREY.—It was with great pleasure that I took, at Wallington, three fine specimens of the Wormwood Shark (*Cucullia absinthii* L.) this summer. They came to a Philips 'Blended' light bulb, which gives out a certain proportion of m.v. light. Two were taken on 17th July and one on 20th July. I was under the impression that these specimen were wanderers until on the 27th July I took a fourth at an ordinary 60-watt 'pearl' bulb at Ewell, some five miles away. This specimen, especially as it is rather worn, suggested that the species was a resident. Two further records by Classey and Honeybourne (*Ent. Gazette*, **6**: 165, 167) for Middlesex and Kent support this. On 6th September I began searching mugwort (*Artemisia vulgaris*) nearby for the larvae and was delighted to find four within an hour. Last evening (7th September) I found one more. All were in their last instar and are at this moment devouring flowers and fruits of mugwort (which they resemble incredibly closely). Perhaps the species has recently acquired a penchant for mugwort and accordingly spread rapidly inland (see 'South' for recorded distribution). It is hardly likely to have been overlooked, especially as it will come to a 60-watt bulb.—P. G. TAYLOR, 83 Woodcote Road, Wallington, Surrey. 8.ix.55.

Fifty Years Ago

(From *The Entomologist's Record* of 1905)

LYCAENA ARION IN GLOUCESTERSHIRE.—This, the chief prize of the lepidopterists in our shire, and formerly not uncommon in several local spots, has considerably decreased in numbers in recent years, and so much so that in most of its former haunts it has disappeared, and we fear that at no distant date it will be sought for in vain in the few and remote places far removed from its former head-quarters, in which it is now sometimes found. We believe the chief cause of this is the very regrettable fact of its having been over collected, hence most of the females get destroyed; also the grand old woods are being removed with the result that timber felling and hauling is continually going on, and these disturbing influences all combine to bring the time when not only *L. arion* will be extinct in our Cotteswolds, but many other less rare species will have died out. Again, in one place in which I used to watch it, buildings have been erected, and in another spot in which I first saw it, quarrying operations are now carried on. All this means new roads made, fresh hauling tracks, the herbage and ants' nests more disturbed, while cattle grazing is on the increase, and most years in early spring the commons and hillsides are often ablaze with burning dry bents set on fire by the village lads (matches are too common in these days of cheap cigarettes). The average of our Cotteswold specimens of *L. arion* are not so large as those I have seen from Devon and Cornwall, or so fine as some I have examined from the Continent.—C. J. WATKINS.

VARIATION IN LARVAE OF PAPILIO MACHAON.—The larvae of *Papilio machaon* have been plentiful until quite recently, feeding chiefly on fennel. I have only found one or two myself, but a friend, who has more spare time than I have, collected about thirty. One was brought to me a week ago that had been found feeding on rue. Its ground colour is very much brighter green than is usual with larvae here, although there is always a trace of green about them. In Corsica, this summer, the larvae of *P. machaon* had their ground colour pure white.—H. POWELL.

LARVAE OF OPORABIA AUTUMNATA.—Until lately I have thought that any *Oporabia* larva with red or black markings must be *dilutata*. Last April, however, a larva in one of my broods of *O. autumnata* developed some black markings. On April 29th, I wrote the following description —"Black dorsal line on segments 4-10; black transverse line at divisions of 5-10." I kept the larva by itself, thinking it might possibly be a *dilutata*, included by accident among the *autumnata*. Today the moth has emerged, a deformed, but unmistakable, *autumnata*. Among many hundreds of larvae of *O. autumnata* which I have had in my possession during the last few seasons, this is the only one in which I have observed any trace of black markings.—J. E. R. ALLEN, Enniskillen, 25th October 1905.

Current Literature

A COLEOPTERIST'S HANDBOOK. By G. B. Walsh and J. R. Dibb (Editors) and eight other Associate Authors. Vol. XI of *The Amateur Entomologist*. 120 pp., 20 plates, numerous text-figures. London, 1954. Price 15/-.

Though among our entomologists the Coleoptera have long been second only to the Lepidoptera in popularity, the budding coleopterist has, on the whole, been rather poorly served in the matter of literature of what may be called the introductory handbook grade—at least as compared with his more favoured 'brethren of the net'. There are, it is true, a few such works, admirable in their way, but now open to the practical objection of being nearly unobtainable, or else seriously deficient in one respect or another. The present one, then, fulfils a genuine need. It breaks new ground and comprises within a handy compass a mass of information not otherwise readily accessible to the beginner; being essentially a 'symposium' to which a number of experts in various fields have contributed, it covers the subject most comprehensively, reflecting great credit on the compilers (especially Mr. Walsh, the protagonist, who to the writer's knowledge has laboured under severe handicaps) and deserving more than a casual, even if belated, notice.

The matter is ranged under the following main heads: field equipment, collecting methods, preparation and care of collection, etc., identification, larvae (structure, habitats, preserving, rearing), host-plants, stored-products species, the regional survey, and photography. A glossary and indices complete it. For descriptions and figures of imagines, or determination-tables, the student is referred to existing works, since it would clearly be impossible here to give more than a small (and inevitably arbitrary) selection of species; and the space saved is devoted to a very full treatment and discussion of other important aspects of the subject—such as collecting and setting, recording, and ecology—usually relegated, in a book of this size, to at most a few introductory pages. The value of the Handbook is thereby much enhanced. It has two further outstanding merits: the prominence accorded to larvae and life-histories, marking a new departure—larval characters are given for all the principal families; and the excellence of the illustrations—seven of the full-page plates are reproduced from J. C. Schiödte's rare work, *De metamorphosi eleutheratorum observationes* (unrivalled in fineness of execution), the remainder being very clear and life-like photographs of larvae and other stages. Another feature is the numerous and useful lists of species associated with particular habitats and food-plants.

It would be easy enough to pick out many details for criticism, such as the presence in or, more often, the absence from the lists just mentioned of certain species; or various minor errors and misprints which, however, seem relatively few. Some points that strike a southern collector as odd, or questionable at the least, may well be due to the 'northerly bias' (if we may so term it) of the work; for the leading co-authors appear to have gained most of their field experience in Yorkshire, where differences of climate or other ecological factors could, perhaps, sufficiently explain such disagreements. Still one cannot but query, for instance, the inclusion of *Stenus kiesenwetteri* Ros. among the waterfall species (p. 27). On the same page *Hister bimaculatus* L. as characteristic of moles' nests is presumably a mistake for *H. marginatus* Er.; the same list contains two species of great rarity, yet there is no mention in it of the nest-living Cholevidae. Also, we should be interested to know what British *Trachys* mines bramble leaves (p 58); and do *Laemophloeus monilis* F. and *Pentaphyllus testaceus* Hellw. really occur here in granaries and flour-mills respectively (p. 18)? Further, it is surprising to see *Lixus iridis* Ol., exceedingly doubtful as British, listed under several food-plants; and still more so *Dirhagus pygmaeus* F., a wood-feeder, under 'Ferns' (p. 87). But whatever may be the shortcomings of this little book, it is a most praiseworthy venture and should be assured of every success.

A. A. A.

EXCHANGES AND WANTS

Wanted.—A subscriber wishes to purchase rare and extreme forms (British) of *Lysandra coridon* Poda.—*Box No. 5, c/o the Assistant Editor, No. 4 Windhill, Bishop's Stortford, Herts.*

Wanted.—Living female pupae of *Saturnia pavonia* or any other large female pupa (*Laothoe populi, Smerinthus ocellata*, etc.) for work on assembling scents. Cash or exchange.—*Dr. H. B. D. Kettlewell, Genetics Laboratory, Department of Zoology, University Museum, Oxford.*

Wanted.—Distribution records in Great Britain and Ireland (especially Ireland) of *Erebia epiphron* Knoch (Small Mountain Ringlet). Localities will be kept secret if so desired.—*Dr. J. F. D. Frazer, Stone House, Boxley, Maidstone, Kent.*

Wanted.—Old insect sale catalogues pre 1952. Also early Bulletins of the Amateur Entomologist's Society. Exchange for other books or cash.—*L. Christie, 137 Gleneldon Road, Streatham, London, S.W.16.*

Wanted.—Lepidoptera of North West Surrey. I am preparing an account of the distribution of Macro-lepidoptera and Pyralidina in Surrey, north and west of the line Weybridge, Woking, Worplesdon, Normandy, Ash Vale (inclusive). Records with full data would be welcome, even of common species: Pyrales and Plume Moths particularly needed.—*R. F. Bretherton, Ottershaw Cottage, Ottershaw, Chertsey, Surrey.*

Wanted.—Pinned or alcohol preserved adult winter gnats (Diptera, Trichoceridae), particularly members of individual swarms, for study of variation of species. Postage refunded.—*B. R. Laurence, Birkbeck College, London, W.C.1.*

Exchange or Purchase.—Edric Higginbottom of "The Butterfly Nursery", Hathersage, Derbyshire, invites entomologists having healthy vigorous livestock of British or Foreign Lepidoptera, surplus to their own requirements, to give him the opportunity of exchanging or purchasing at a good price.

For Disposal.—The collecting apparatus of the late Mr. H. W. Andrews, including nets, boxes, tubes, setting cases, and boards, magnifiers, pins, postal boxes, headband magnifier and binocular microscope by Leitz. Fuller details may be had from our Hon. Treasurer, and offers should be made to Mrs Andrews, Spring Cottage, Smugglers Lane, Highcliffe, Christchurch, Hants.

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Collecting Notes, 1955

By W. Reid.

(*Continued from page 218*)

On 30th July I travelled to Holyhead, taking with me the portable trap. That night was one of ideal weather conditions for collecting, and I examined the trap contents just after dawn on the 31st. In the bottom was a layer of midges about 1½″ deep, and I noted down 122 species of the so-called Macro-lepidoptera. Amongst these were 14 *Triphaena interjecta* Hb., 3 *Agrotis lunigera* Steph., 1 *Ammogrotis lucernea* L., 1 *Eilema caniola* Hb., 2 *Hadena conspersa* Schf., 3 *Apamea ophiogramma* Esp., 1 *Actebia praecox* L., 3 *Leucania straminea* Tr., 2 *Celaena leucostigma* Hb. (male and female) and many *Rivula sericealis* Scop., *Hydraecia oculea* L., *Hydraecia paludis* Tutt, and *Scopula marginepunctata* Göze. The female *leucostigma* is almost black, but the male is quite typical. The identification of so many insects packed on eight egg cartons is apt to be difficult, and it is probable that many of the *straminea* were confused with *Leucania impura* Hb., which were released without a very precise examination. These two species are difficult to separate when sitting with the wings folded in the hollows on the egg cartons, because the underwings are unexposed and the slightly different shape of the tips of the upper wings is not very apparent when the moths are sitting in the rest position. The large species total must be due to late emergences of the early summer species coinciding with the early emergence of the later August species, owing to the abnormally warm July and cold June.

On Sunday, 7th August, I was with Dr. Neville Birkett in Kendal, and although it was a cold night I had the pleasure of taking my first *Eustroma reticulata* Schf. On the previous Thursday they were flying freely in the locality we worked, which was a large area with an abundance of the food plant, and as the yellow balsam is spread over a wide area in the district, it is unlikely that the moth will be exterminated by collectors, although other human agencies may have some effect to this end.

On my way home on Monday, I visited the famous Grass Wood in the Wharfe Valley at Grassington. I did not see much of interest except two specimens of *Erebia aethiops* Esp. which, I am told, were thought to be extinct in that area. It was far too hot to try to catch them on the stony slopes on the outskirts of the wood, but I have seen too many of these insects in Switzerland to mistake them in flight. I did not stay there long as the air was polluted by the smell of dead rabbits, myxomatosis had evidently just appeared there, and the only creatures which appeared to be enjoying themselves were the carrion crows. It was not pleasant to see dozens of rabbits stricken with the disease moving slowly about in the open—many of them quite blind—waiting to die.

My wife and I left on 12th August for a week's stay in the New Forest, and on our way we spent two nights with Mr. and Mrs. Austin Richardson at Minchinhampton. Saturday night was occupied in collecting with Mr. Richardson at a locality on the banks of the Severn. *Nonagria dissoluta* Tr. was much the commonest insect, in quite fresh condition, and Mr. Richardson took one of the black forms—the first record for Gloucestershire. Other species noted were *Harpyia furcula* Cl., *Chilodes maritima* Tausch, and *L. straminea.* Four very nice *Cryphia muralis* Forst., all of different forms, were taken from walls in the centre of Gloucester on our journey to the marsh.

We arrived at Lyndhurst on the Sunday and set about exploring the district. We found caravans and tents scattered about everywhere, and some of the famous sugaring rides were more like small towns! I sugared and used my light on every night, but both methods of collecting produced extremely poor results. This was not really surprising, as during the daylight hours the weather was very sunny and hot with clear skies, and these continued all through all the nights, and the resulting ground mists were not conducive to good flight conditions. Only four moths appeared on sugar during the whole time, of which two were *Catocala sponsa* L., the other two being *Amphipyra pyramidea* L. The m.v. lamp drew in a few more including one *Catocala promissa* Schf. A few *Alcis jubata* Thun. and *Semiothisa alternaria* Hb. were taken, but little else.

On my return from the New Forest, conditions in Sheffield were very different from those in the South. It was still hot, but damp and muggy, with a high relative humidity, and moths were about in thousands. On the morning of 22nd August there were more moths in the trap than I have seen before, and some of the indentations in the eight full-sized egg cartons held as many as ten *T. pronuba*, packed in like sardines in a tin. And, as most of the indents were filled, there must have been between 3,500 and 4,000 at a conservative estimate. I am aware that larger numbers have appeared during a single night in the South, but I am quite pleased that I do not have to look over so many every morning. Similar catches occurred during the next three nights, after which things slackened off.

A new record for my Sheffield list was a fresh female *Eremobia ochroleuca* Schf. on the 22nd August. On this date *Atethmia xerampelina* Esp. was also in the trap, a very early appearance for Sheffield. Several specimens of the melanic form of *Procus literosa* Haw. have been taken—indeed, this form is dominant in Sheffield.

Apamea scolopacina Esp. has been especially common in Sheffield this year, there having been as many as 40 in the garden trap on several nights in late July and early August. Its food plant, couch grass, is abundant in the woods around my house. *Sterrha inornata* Haw. has also been abundant this year—I have only had a single specimen previously. *Plusia interrogationis* L. appeared in the trap on the 25th July, some 10 days earlier than usual. *Enargia paleacea* Esp. has been much more abundant this year, some 60 specimens having been noted in the trap during August and September, the latest on September 24th.

None of the migrants have appeared in the trap with the exception of *Plusia gamma* L. The month of September was, on the whole, disappointing, numbers being very much below normal with only odd specimens of the usually abundant Autumn moths. The cold clear nights were undoubtedly responsible for this, and in spite of the numbers taken in August, the whole season in Sheffield has, I think, only been an average one.

Notes from South-East Cornwall

By Colonel H. G. Rossel.

This season has been a short and peculiar one. The exceptional frosts in the spring made the m.v. light unproductive before May, and there was a heavy falling off in numbers and species of moths from August. Could this be due to the almost total drought here during July and August? I had hoped to get further afield, locally, this summer, but had to confine most of my observations, through physical disability, to a half-mile radius of my garden.

As regards butterflies, there were very few *A. cardamines* L. this spring, or *C. argiolus* L., as contrasted with 1954. Swarms of *Pieris brassicae* and *P. rapae* ruined our cabbage, elsewhere, in August, and for the first time since 1947 there were considerable numbers of *C. croceus* Fourc. (with a fair sprinkling of f. *helice*) flying in the cliff fields. I managed to persuade two females to lay, and I hear that healthy progeny have resulted. The *croceus* season long outlasted that of the 'whites', and on 13th October, with only an occasional 'white' flying, I saw over 50 *croceus* (all males) and one *C. hyale* L. in a small field in forty minutes.

The earliest local record I have of *V. atalanta* L. was on 23rd April 1948, but I am certain I have seen *atalanta* earlier than this. During the latter part of July, August and early September they were flying freely here. It was curious to note the large numbers of *atalanta*, *A. urticae* L. and the 'whites' flying apparently aimlessly in all directions (many indeed flying from the land) a mile or two out to sea. Incidentally, I tried to overtake a *P. rapae* coming in from the Channel, in my small motor-boat, the speed of which is six or seven knots. I found that, even on a cross wind, I could do no more than keep level with the insect. *A. paphia* L. was as plentiful as usual, but I saw few *A. euphrosyne* L. or *A. selene* Schiff. this year. *A. cydippe* L. and *A. aglaia* L. are I think absent from our area. Years ago I saw two of the former in a locality since devastated by the Forestry Commission, and none since anywhere. *N. io* L. has been scarce this year; it is probably a coincidence that I seldom see many in a dry season, 1947 being another instance. Last year they swarmed. I have not seen any *S. w-album* Knoch and I fear their small colony may be extinct, though there is no adequate explanation. Incidentally, I had a *V. atalanta* in the light trap on 22nd June, and a *P. aegeria* L. (our commonest Satyrid) on 22nd August. I have seen very few *V. cardui* L. in spite of a record crop of thistles.

As regards moths, there have been few interesting species to add to those in my Note in last January's *Record*. *M. tiliae* was conspicuous by almost total absence, but the other local 'hawks' were in their usual numbers. *M. stellatarum* L. swarmed in August at Valerian (last seen on 10th October) and at the Streptocarpus and other pot plants in my porch and greenhouse. One slightly damaged *H. convolvuli* L. was in the light trap on 23rd September.

Among the 'Bombyces' I had one *H. furcula* Cl. and one female *S. fagi* L.—the first female among about twenty specimens at light in the last two seasons. I was glad to obtain a few eggs to supply a request.

P. gnoma Fab. and *N. dromedarius* L. appeared for the first time, also *T. duplaris* L., *L. monacha* L., *C. glaucata* Scop. and *P. bicolorana* Fuess. I had a fair number of *A. rubricollis* L., but only six *L. quadra* L., most of them in worn condition. There was quite a number of *P. fuliginosa* L., but only about a dozen *A. villica* L. in the trap.

Among Noctuae, two *A. alni* L. arrived (my annual ration, it appears) while only one *L. fimbriata* Schreb. appeared (on 20th September). Mr. Tams found two *H. barrettii* Dbld. among my June captures but 'demoted' the *H. albimacula* Bork. which I claimed in my January note to the rank of *H. conspersa* Schiff. I was misled by the figure of *albimacula* in 'South' which is almost exactly similar to our local form of *conspersa*. *A. scolopacina* Esp., *C. graminis* L., *H. paludis* Tutt, *A. pygmina* Haw. and *L. straminea* Treit. were new to me, and I had one more *L. putrescens* Hb. and was visited by a large number of *L. l-album* L., which seems an established species here, and double-brooded this year. I understand from Mr. Dobson that it is common at Torquay (S. Devon). *S. anomala* Haw. also arrived, and although the 'sallow' moths are uncommon here I had a few *C. lutea* Strom. (*silago* Hb.) and also *D. rubiginea* Fab. *Lithophane socia* Hufn. appeared early in the season, and recently *C. affinis* L. I should have mentioned, in their usual order, *T. interjecta* Hb. and *O. miniosa* Schiff., while unexpected arrivals were one *O. stabilis* Schiff. on 6th August and one *O. advena* Schiff. on 27th September. I had one *H. peltigera* Schiff. on 25th June and several *S. libatrix* on 16th June and 22nd July, unusual dates according to 'South'.

I must apologise for a slip in my January note, when I said that we had *P. bractea* Schiff. here. I wish we had! I meant *P. iota* L. *P. gamma* L. was of course present in myriads, but I could not spot any *P. ni* Hb. among them.

Among the Geometridae, three specimens of *G. papilionaria* L. arrived and a number of *A. viretata* Hb. and *D. blomeri* Curt., but little else to add to last season's list, except *E. fasciaria* L., *D. erosaria* Schiff. and *G. obscurata* Schiff. Not a single specimen of *L. hirtaria* Cl. was seen, though *B. strataria* Hufn. was common. What appears to be a small cream-coloured form of *C. pectinataria* Knoch flies here in September. I do not know if this is so elsewhere.

I found *Z. trifolii* Esp. flying in the same small locality as *Z. filipendulae* L., but about ten days earlier.

Bodinnick-by-Fowey.

Field Work in 1955

By Alan Kennard.

I have found this year an extremely good one at mercury vapour light, and whereas in previous years it has been of rare occurrence to have more than 750 moths in one night, this summer I have found regularly more than 1,500 moths in the trap. Comparing this with other years I have found that certain species have had a good year while others a bad one. Particularly noticeable in the latter class was *H. w-latinum* which made its first appearance in June on the 12th and only five specimens in all were taken; whereas in 1953 it was a regular visitor from 16th May until well into June. Similar was the case of

M. trigrammica which first appeared on 3rd June and the largest total for one single night was six specimens on 26th June. In 1953 it was out on 23rd May and thirty to forty specimens were visiting the lamp regularly in the second week of June.

H. pinastri did not turn up until 1st July and only six specimens were taken in the next three weeks. In 1953 seventeen specimens were taken in all between 11th June and the end of July, and a neighbour gave me a specimen taken on 19th May. *S. ligustri* was also very scarce this year while *L. populi* and *D. elpenor* were more abundant this year, emerging at about the same time as in 1953, although a friend of mine saw a female of the latter species sitting on a wall on 2nd January! Two species which I expected did not appear this year, namely *A. villica* and *D. fascelina.* Other species which had a sharp decline this year were *A. aceris, A. megacephala, M. neustria, G. bidentata* and *A. clavis.* I am glad to say that I have found many more at the other end of the scale. Two common species *L. varia* and *A. ipsilon* stood out this year. The former first appeared on 14th June, but on the 12th July it swarmed, 302 coming to light, compared with an average of 5 a night over the previous month. For the next fortnight it was always in three figures. With the latter species, as usual, it appeared irregularly through June, July and early August; however, in the second week of August its numbers rose sharply and were soon in the thousands, which must have been due to an immigration.

A visit to Slapton Ley, Devon, on 14th August, proved rather interesting. Moths were coming steadily to the lamp and the sheet was dominated by the commoner 'wainscots'. At about 2.30 a.m. the sheet was suddenly covered by *A. ipsilon* and *P. gamma,* and these two species were everywhere for the next hour and a half and then all was back to normal again. The majority of insects appeared to be flying from the South-East and during this time I took a male *L. quadra.*

On the 17th August, on my way up to Sussex, I stopped for a day in East Dorset and was told that they were not troubled by *A. ypsilon* in that district. However, on the 23rd I stayed the night at Studland near Swanage, where I ran the m.v. on the cliff. No sooner had I lighted up than a stream of moths came in from the sea (all flying against the wind, which was W.S.W.). These were chiefly *ypsilon* and *gamma* with a few *P. meticulosa.* At least 50 per cent. of the *gamma* were of the small race. The count in the morning revealed that these three species represented approximately two thousand four hundred moths. During September there appeared to be another slight influx together with *P. saucia,* but these never became a nuisance.

While at school near Wimborne, Dorset, in July I was surprised by taking several *L. pastinum* and *A. unanimis* and even more numerous *T. batis, L. rubi, E. sororcula, P. nebulosa, A. infesta, G. papilionaria, Z. pyrina* and *H. humuli.* Other species of note were *C. cribraria,* a wanderer from a heath two miles away, *P. dominula, A. prasina, P. moneta, L. salicis, A. trux, N. mundana* and *L. pudorina,* all of which I have not taken before. The annual *A. alni* turned up on 26th June and the only not so common immigrant was *N. obstipata* on 9th June.

I got home for the summer holidays at Ashburton, Devon, on 26th July and found that I could hardly walk without disturbing dozens of *P. gamma.* At light that night 2,000 appeared together with a *N.*

obstipata. Ninety-two species were represented amongst 2,523 moths, both figures being a record for me. During the next fortnight I had four more *A. prasina* and several *P. moneta* and *A. scolopacina. Plusia iota* and *L. quercus* were also notably common. On 31st July a fresh female *C. galii* appeared in the trap. During the second week of August *C. croceus* began to get common but they were almost all males and soon afterwards *M. stellatarum* was hovering in numbers over the Buddleia. On 14th August I went to Slapton Ley and a very red form of *N. sparganii* visited the light, together with *E. hera* (*quadripunctaria*), *N. typhae, N. geminipuncta, P. festucae, C. leucostigma* and *E. caniola.*

Euplagia hera became fairly common on 25th August although it was flying at the beginning of the month. I find this insect rather shy of light and very rarely does it go into the trap but generally sits on the outside. On the date mentioned the outside of the trap was covered with this species. A night at Cadnam in the New Forest on 17th August found the sheet covered with *C. furcula*, amongst which I picked out an extremely black one and have not as yet firmly established its identity as it resembles all three 'kittens' in one way or another. This was the only place this year where I found a second brood of *L. populi.*

At the end of the month I went to south-west Wiltshire where I found the 'sallow' moths in full swing and took both *T. aurago* and *C. gilvago* and also a rather small 'footman' moth which still puzzles me although I think it must be *E. complana*, but it did not sit in the same manner as this insect since it wrapped its wings around the body like *E. caniola.* I got back to Devon on 3rd September to take *R. sacraria* and on the 7th *L. vitellina.* The next week in central Essex was rather disappointing and on getting home I found *A. diluta* commoner than usual. A visit to Torquay on 19th September produced two fresh *L. l-album* and on 21st September a further *L. vitellina* appeared. On 16th September four *V. atalanta* visited the m.v. and were flying freely around the trap just before dawn. Three were in perfect condition and since the previous evening I did not notice any in the vicinity I feel they must have travelled some distance in the night.

Canford School, Wimborne, Dorset.

Microlepidoptera at a M.V. Lamp in a Manchester Garden

By H. N. Michaelis.

The garden, in the southern suburbs of Manchester, is on light almost sandy soil and the range of the light is limited to twenty yards on the west by my house, and by one hundred yards to the south and east by other houses. Two hundred yards away lies a main road lit by m.v. lamps, around which moths are rarely seen. The area is well provided with old deciduous trees, with a few acres of weedy pasture on the far side of the main road. The lamp was rarely on for more than two hours, never later than 12.30, and was used occasionally in June and frequently from mid-July to early October. The apparatus is a blended m.v. lamp, a camera tripod and a sheet. I think that the blended lamp is not as good as the m.v. lamp used with a choke.

Compared with the records of the doughty heroes of the moth trap the results are poor, for I have never seen more than thirty yellow underwings on the sheet at one time; but I have gained some pleasure and a small amount of information.

While we hear much of the larger moths taken at m.v. light, rarely do we see notes on microlepidoptera or other insects taken by this means. A lamp and sheet on a warm evening should be a paradise for a dipterist, a neuropterist or a hymenopterist.

Before dealing with the 'micros', a few remarks should be made on the subject of pests. Now, all mobile large moths are pests when one is trying to tube a lively *Elachista* or a small *Tortrix*. Apart from flying in one's face, these large moths stir up other insects until the whole resembles a riot in an eastern bazaar. Other pests are the common species, mobile or still, which in their seasons distract one from better things. The light attracts the common Noctuids more readily than the common Geometers, for species such as *X. fluctuata*, *C. bilineata* and the common *Eupithecia* appear in small numbers in relation to their known plenty.

A rough analysis of the appearance of the small moths based on the observations of the past two years suggests that many of the known common species show little interest in m.v. light, *e.g. Crambus culmellus* L. and *C. tristellus* Schiff. are occasional while *Platyptilis pallidactyla* Haw. and *Hemimene petiverella* L. have not appeared. These species are common in the garden. On the other hand, I have taken species, sometimes in plenty, which I did not know occurred in the neighbourhood. The fact that I have rarely used the trap after midnight may have a possible bearing on the absence of some species, though I have noticed that many of the small moths appear during the first hour after dusk. Observations on species are given below.

PYRALOIDEA.:—Phycitidae—none. Crambidae—see above. Pyraustidae—*Acentropus niveus* Olivier, *Cataclysta lemnata* L., *Nymphula nymphaeata* L. and *N. stratiotata* L., all occasional, *Notarcha ruralis* Scop., *Eurrhypara hortulata* L., *Phlyctaenia lutealis* Hb., all common, and two common species of *Scoparia*, occasional. Alucitidae—*Platyptilia gonodactyla* Schiff and *Alucita pentadactyla* L., occasional.

TORTRICOIDEA:—Tortricidae—Common species of *Cacoecia*, *Pandemis*, *Tortrix* and *Cnephasia* were plentiful. *Peronea variegana* Schiff. and *P. sparsana* Haw. were frequent, with a few *P. holmiana* L., *P. latifasciana* Hb. and *P. contaminana* Hb., the latter being more plentiful at ordinary electric light. Eucosmidae—*Spilonota ocellana* Schiff., *Acroclita naevana* Hb., and two species of *Gypsonoma* were common. Fourteen species of *Eucosma* were seen in small numbers, many of which are known to be common in the garden. Four *Polychrosis littoralis* West were a surprise and were probably introduced with imported Sea Pink. The common *Pammene regiana* Zell. was rarely seen. *Ernarmonia pomonella* L. was abundant in July and light proved a useful control, for a well directed thumb killed twenty to thirty a night. As a result my apples are less worm-riddled than usual. Several *Ernarmonia nigricana* Fabr. were seen.

TINAEOIDEA:—Several of the Gelechiidae appeared and this family supplied most of the surprises. Cosmopterigidae—*Blastodacna hellerella* Dup., *B. atra* Haw., *Mompha raschkiella* Zell., *M. conturbatella*

Hb. and *Batrachedra praeangusta* Haw. came in small numbers with single specimens of *M. subbistrigella* Haw. and *M. ochraceella* Curt. Oecophoridae—*Esperia sulphurella* Fabr., *Endrosis sarcitrella* L. and *Hofmannophila pseudospretella* Staint. were plentiful, the two latter suffering the same fate as *E. pomonella*. The *Depressaria* were disappointing, for only five common species were seen. Elachistidae—four common species came in small numbers and three *Elachista atricomella* Staint. were taken on one evening. Yponomeutidae—*Yponomeuta padella* L. and two species of *Swammerdamia* were common with a few *Prays curtisellus* Don. Coleophoridae—very few, four common species seen. Gracillaridae—only a few common species of *Lithocolletis* were seen, *L. concomitella* Bankes and *L. blancardella* Fabr., plentiful on adjacent apple, almost ignored the light. The plentiful *Caloptilia syringella* Fabr. came occasionally together with one *C. tringipenella* Zell., a species I have not found in Manchester before. Plutellidae—a varied series of *Ypsolophus vittellus* L. was taken with one *Y. scabrellus* L. *Plutella maculipennis* was plentiful. Six species of *Argyresthia*, including two *A. ephippella* Fabr., were seen. Lyonetiidae—*Leucoptera laburnella* Staint. common and L. *spartifoliella* Hb. occasional. Tinaeidae—only seven common species of which *Monopis rusticella* Clerck and *Tineola bisseliella* Hummel were plentiful. Stigmellidae—a score of *Trifurcula immundella* Zell. appeared in early August.

The most interesting period in 1955 was 16th-22nd August, when there was an invasion of water insects. The nearest possible breeding grounds are about 500 yards distant. The visitors included 7 *A. niveus*, 5 *N. nymphaeata*, 9 *C. lemnata* and 2 *N. stratiotata*, together with at least 6 species of Caddis (some in plenty), several *Corixia*, two *Dytiscus* and a smaller water beetle. A friend living a dozen miles away found the same moths during the same period, a coincidence which causes one to consider a movement in the very dry conditions rather than local breeding. In August a hedgehog visited the light and remained for several minutes on the edge of the sheet, eyeing the delicious fare spread before him. Unfortunately he was seen by our cat before any further developments took place. The cat advanced with caution and the hog retreated slowly through the raspberry canes in safety and was not seen at the light again.

Memories of a Naturalist—III

By MALCOLM BURR, D.Sc.

Another habitué of the Museum at Oxford was Dr. Dixey, bursar of Wadham. He was the acknowledged authority on the White butterflies and was one of the old-fashioned sort, who used to write his business letters to the College tenants in full in his own handwriting, because he was afraid that they would be offended if he had them typewritten.

He told me of a highly tactful remark made by a lady well known in Oxford society in those days. She asked him if he had been to some garden party.

"No", answered Dixey, "somehow or other the invitation never reached me".

"Well", said the lady, feeling that she ought to make some remark, "I suppose they must draw the line somewhere".

Colonel Swinhoe was an old Indian officer with a wonderful head of curly grey hair who was engaged upon the butterflies of India for the Government's publication in *The Fauna of British India* series. He used to sit by the hour at his table in the laboratory, smoking endless black cheroots. The stumps of these he used to place on the edge of the window-sill, and each charred a little black groove in the edge. Before long there was a whole row of little charred grooves, decorating the sill as though with poker work. I dare say this relic of old Swinhoe is there still.

The staff of the Department consisted of two assistants, Holland and Hamm, both of whom, like good entomologists, lived well on into the eighties. Hamm used to sit there by the hour setting butterflies with unerring accuracy and delicacy. He was a first rate entomologist. When studying the Aculeate Hymenoptera he deliberately allowed himself to be stung by every British species. He told me that they did not hurt so badly after all and even the hornet is not so terrible as people think. This surprised me, as I had grown up in the country tradition that three hornets will kill a horse. Hamm was a fine observer and afterwards elucidated the quaint matrimonial customs of a group of small flies called *Hilara*. These little chaps are fierce carnivores, so for the male courtship must be as exciting as it is among many spiders and mantids, where the lady usually devours her mate, being as indiscriminate as greedy. The male *Hilara* gives the lady of his fancy a gift, perhaps a midge, wrapped up in a neat little parcel of silk of his own weaving. She is so busy unravelling it to find the treasure inside that he is able to work his wicked will and thus the species is perpetuated.

Another original character in the laboratory was Commander J. J. Walker, R.N. He was a naval officer of the old school, genial and friendly, whose circumference was nearly equal to his height, at least in his later years. He was popular with everybody. He had been on a survey in Australian waters as a young man and out there had an unusual experience. Taking his first walk ashore, he had shot a laughing jackass, unaware that these grotesque birds—that look like a kingfisher in a nightmare—are great destroyers of vermin and that to destroy one is as great a social crime as to shoot a fox in England. His brother officers sat upon the case and the verdict was that he should eat it for breakfast, and they saw to it that he did. He used afterwards to boast that he was the only man in the world who had eaten laughing jackass for breakfast.

He was an ardent coleopterist, with an extensive knowledge of general natural history and a photographic memory. Whenever one showed him an insect, especially if it were a beetle, he would say "Oh, yes, that is (so-and-so). I took it at Queenboro' in '65", and once when I showed him as a curiosity a rare earwig with remarkable asymmetrical forceps, he remarked casually, "Yes, I used to get that on top of Mount Wellington in Tasmania".

He had, too, a ready wit. One morning in the laboratory Harry Eltringham commented upon the ridiculous trivial names given by the older writers to moths. There is one kind with setaceous or thread-like antennae and a mark of the forewings vaguely reminiscent of a letter of the Hebrew alphabet: now, while setaceous means thread-like, if spelt cetaceous the word means belonging to the whale family.

"Look at this", said Harry. "What an absurd name! Who ever heard of a Setaceous Hebrew Character?"

Instantly Walker replied: "The only one I ever heard of was Jonah!"

Walker spent his retirement at Oxford, where in recognition of his services to Entomology the University granted him the honorary degree of M.A. Like a good entomologist he lived to the age of eighty-six, editing *The Entomologist's Monthly Magazine* to the end.

Public and social life in Oxford did not appeal to me. I joined the Union only because of the unique privilege of members of having their correspondence stamped at the expense of the club, so that I got my interest on the £10 life composition that I paid on joining. I never attended a debate, much less took part in one. Politics always bored me and general literature was, I must confess, outside my scope. Neither did I join a dining club or take an active part in any games or athletics. With my small circle of friends and my Entomology I was completely satisfied. These friends were chiefly Edgar Schuster, still happily with us, Yervant Essayan, J. R. M. Hart, afterwards counsel to the National Sporting Club, A. M. Cohn, and N. G. Meakin. The latter was an original character, perhaps a little fond of posing, but very entertaining. He followed up a brilliant First in the History schools by his novel *The Assassins,* in the Ivanhoe vein, which achieved a success but not fame. Then there was Alec Lees-Milne, an original with an unusual knowledge of some of the byeways of chemistry. Owing to his youthful sartorial extravagances in moments of exaltation he earned the nickname of 'Purple Emperor'. He was an excellent travelling companion, humourous and a good linguist.

One day Yervant invited me to lunch in his rooms to help entertain a distinguished guest. It was Professor Paul Errera, Rector of the Université Libre of Brussels, with Madame Paul Errera. He had come to give a lecture in Oxford on an early jurist, Jean Bodin, a predecessor of Montesquieu. This occasion was the basis of a long—and to me most valued—friendship.

Paul Errera was one of the most accomplished and talented men I have known. His wife, a magnificent blonde, with the reputation of being the handsomest woman in Belgium, was an authority on embroideries and similar textiles. Further, the family was a wealthy one, heirs of a banker of Venice. Paul showed me immense kindness and invited me to pay him a visit to Brussels. I was the guest of his mother, Madame Errera, a *grande dame* of the old school, who owned a huge house at the corner of the rue Royale facing the royal palace, and a splendid chateau at Uccle, at the corner of the Bois de la Cambre, outside the city. Paul, of course, also had his own house in town, as had his brother Léo, Director of the Botanic Gardens.

Madame Errera used to hold a *salon,* where she gathered the élite of the intellect and talent of Belgium and often some distinguished foreigner was present. As the Erreras were Jews, their house was neutral ground for the political parties, where Catholics and Calvinists, Liberals and Socialists could meet and freely discuss matters of common interest. Both Paul and Léo were not only endowed to a more than ordinary degree, both mentally and materially, but were as wise as they were charming. Two subjects were barred in their house, politics and business.

Often I would get a telegram at Dormans inviting me to dinner in Brussels the next day, to meet some interesting person. That meant starting at six in the morning on a seven mile drive in the dogcart to Edenbridge to make a connection for Dover that would let me catch the boat. On arrival in Brussels I would take a tram up to the rue du Trone, where in an estaminet I would find a bunch of entomologists playing cards and join them in a chat and a Gueuse-Lembic. They were surprised that an Englishman could drink their Brussels speciality, but to me it was like Bass with a rather sharper bite at the back of the throat.

"Monsieur Burr takes the paquebot like a tramway", they would say, holding out the left hand with easy Belgian familiarity, which I liked as it showed that they no longer treated me as a foreigner. In fact, since I had joined their Entomological Society and contributed to its Transactions they treated me as one of themselves.

Then on to Madame Errera's to dinner; on my first visit it was to Uccle and, as the latest visitor, it was my duty to take my hostess in. I marched her across to the table, big enough to seat over a dozen yet lost in the corner of that immense dining-room. One of the guests was a young Rumanian, Racovitso by name, who had gone as zoologist with the Belgica Expedition to the Antarctic. When he was telling us about his impressions of whales he described how their massive gambols, to his mind, proved the aptness of the French expression *rire comme une baleine.*

When we rose from the table at the close of dinner, I stood by my seat and waited. There was an awkward pause, and then Madame Errera held out her arm to me, saying: "Yes, of course I know of your funny English custom of letting the ladies go out alone; but we do not do that here". I instantly took the hint and conducted my hostess to the saloon.

It was a beautiful chateau and I specially loved the garden. This dropped away in a steep slope from the front of the house to the kitchen garden below, thus exposing an extensive panorama over the plain of Flanders, including the field of Waterloo. It was a great pleasure to stroll about the garden listening to the wit and conversation of Paul. Little did either of us think then that this garden held in its very form two tragedies.

About that time there had been a sensation in the European press that a mediæval cope of great value had been stolen from the cathedral of Ascoli. Now at that time there was a wave of prosperity in the United States, and American millionaires were spending vast sums in buying historical and artistic treasures in Europe to dignify their homes and museums. One of the most prominent at the time was Pierpoint Morgan the banker. When he had acquired any particular remarkable item he had the decency to leave it on exhibition for a time, so that Europeans could bid farewell to their treasures which they were losing, treasures which—like heirlooms—are too often taken for granted.

Madame Paul Errera, one of the appreciative minority, went to see this latest acquisition of the American banker. Instantly she exclaimed: "Tiens! Mais c'est le chaperon d'Ascoli!"

This was reported to the Police, and upon the strength of that lady's determination Morgan restored the cope to Ascoli and cut his loss.

Paul and his wife had two children, Gabrielle and Jacques. Gabrielle grew up into a tall, slim beautiful girl with a marked talent for portrait painting. She married an Oppenheimer of Frankfurt, but I never heard of her eventual fate. Jacques became a professor of chemistry and won an international prize. In later years I saw his charming little children and, as on my first visit, Madame Errera had presented me to a very old lady, Paul's grandmother, who had greeted me with congratulations upon making a conquest already. I was puzzled, and then she explained with a sweet smile, ''la petite Gabrielle!'' That gave me a feeling of elation, for I had already fallen in love with Paul's sweetly pretty little girl of—I suppose—twelve at the time and had longed for her to grow up.

Thus of the Errera family I had known five generations.

During the Oxford period I enjoyed one great privilege. Dr. Robson Roose, then at the peak of his success, used to invite me to come in to meet his distinguished guests at the very select dinner parties that he used to give, sometimes at his house in Hill Street, sometimes at the St. James' Club. It was not often that I had much chance of conversation with them, but the mere fact of meeting such men was a stimulant. With Sir Henry Rider Haggard I longed to talk about my beloved Umslopagaas, but he looked rather bored. It was not easy to realise that behind that calm face, with short fair beard—not nearly so full and rich as that of his hero Sir Henry Curtis—there lurked so original and powerful an imagination. Tall and slim, with swarthy beard, ''Black Michael'', as Sir Michael Hicks-Beach was known, was not at all my idea of a Chancellor of the Exchequer, and Lord Justice Vaughan Williams reminded me of an old farmer I knew. Akers-Douglas, of the Board of Works and afterwards Lord Chilston, was very human and even remembered me when we chanced to meet in the Tube or at his beloved Junior Carlton, where I used fairly often to lunch.

Another personality I met at Dr. Roose's was the Bishop of London, Dr. Winnington Ingram. He was a man of astonishing vigour and energy. After lunch one day at Dr. Roose's, as we met in the doorway, he asked me which way I was going.

''To the Royal Societies Club, in St. James's Street'', I answered.

''Splendid'', he replied. ''I'm going to the Palace, so let's go along together''.

The Palace of St. James's was very near to the Club, and so he gripped my arm and set the pace. In fact, he went off so fast that I had difficulty in keeping up with him.

''How nice it is to find someone who can walk with me'', he said. ''I go too fast for most people''!

Hearing from Dr. Roose that I was a specialist in earwigs he invited me to contribute an article on those queer insects to his periodical, called *Goodwill*. Now, there is a great deal of interest about these odd insects when you know something about them, and one is the wings, which are a marvel of delicacy of structure. But to examine their wonderful mechanism is difficult with a dead specimen and impossible with a live one. While few people have any scruples about crushing an earwig, it seemed incompatible with the title of the Bishop's periodical to describe the most effective method of killing them for examination. So I laboured to explain that few people had any compunction in allowing their cooks to boil lobsters alive, and that the best way to deal with earwigs is to drop them into boiling water, which was an instantaneous death. This struck my father as comical and for years afterwards he used to chuckle at the idea of "Goodwill towards Earwigs . . . . Drop 'em into boiling water"!

About this time I began to realise the importance of the Russian language. The literature of the Orthoptera that was accessible to me was in English, French, German and Spanish, with a little in Italian. This covered the tropics, too. But I saw that it was not practicable to know the Orthoptera properly of the rich Oriental, African and South American regions, with their seemingly overwhelming richness and variety, and decided that I could find enough to keep me busy in what is termed the Palaearctic Region, that is, roughly, the temperate parts of the Old World, all Europe, North Africa and Asia north of the great central mountains, which is all tolerably uniform and has a characteristic fauna. But the books I knew told me little about the insects of eastern Europe and practically nothing about those of Central Asia, an area big enough to be a whole world in itself. I found, somewhat to my surprise, that its Orthoptera commanded a rich literature but that it was almost entirely in Russian. It was manifestly essential to acquire at least a working knowledge of that language.

So I bought a grammar, but found that to learn Russian from books alone was a heartbreaking job, and, therefore, I took a trial lesson at the Berlitz School. My teacher saw that I was keen and learnt languages quickly, and recommended private lessons. I agreed, but after one or two was discouraged and a little bored, so I forced my own hand and paid £15 down in advance—that was the price of forty lessons. That compelled me not to shirk the work and to come up to town for the day on purpose, but I never took any more. At the end of those forty lessons I had caught the hang of the pronunciation and broken the back of the grammar, so that I could carry on alone. With the help of a dictionary I read through a good deal of the Russian classics, *Crime and Punishment* of Dostoievsky, *Resurrection* and *The Queen of Spades* of Tolstoi. I liked Turgeniev best, finding him most readable. Of poetry, I found I could read Pushkin's *Evgeny Oniegin* fairly readily, but Lermontov's Poems of the Caucasus were too difficult and exotic.

There was no professor of Russian at Oxford in those days, but a Reader, W. R. Morfill, a dear old gentleman with a boss eye. He was a good philologist and had a profound knowledge of the Slavonik languages, having published grammars of several. But he was weak on conversation, his pronunciation highly John Bullesque and he was not good at teaching. With him I read part of *Evgeny Oniegin* and before long could recite the opening chapters by heart. It was not of much practical use, but at least it increased my vocabulary and gave me some standard quotations, which came in useful afterwards. I also tried to read a little Serbian with him, but it was not very successful. He chose a bloodthirsty poem, and when Jafer had his eye gouged out with a spear—"and the eye lay hissing on the green turf"—he rolled his goggle eye and said in ecstacy "Isn't it lovely"!

One of the immense advantages to me, as a young man, of the serious study of a subject like Entomology was that it brought me into contact not only with such of my own countrymen as the professors at Oxford, but the often very real friendship with men in another world.

I began, greatly daring, by opening correspondence in schoolboy French and elementary German and was not even afraid of Spanish. A long correspondence ensued, which lasted until his death, with August de Bormans, then the recognised authority upon the earwigs, which attracted me especially because in that family I sensed an unworked field for my energies. He was a strange man who, I learned afterwards, for I never met him personally, suffered from persecution mania. It seems that many years previously he had killed a man in a duel and was afraid of the vengeance of his victim's family. One consequence was that he kept changing his name, and a series of papers appeared in various French and Italian periodicals under the names of A. Durieu, A. Durieu du Brony, A. Durbony and, finally, de Bormans. Eventually, I suppose, that effected its cure, for he settled down to de Bormans and did not change again. But the style of his articles betrayed the identity of their author.

One day I received a letter from him asking whether I would care to buy his collection of European Orthoptera. The price was £60. To me it opened the gates of Heaven. My father, who always did all in his power to encourage my entomological studies—although to him rather mysterious—saw their true value, at once appreciated the situation and gave me the necessary cheque. Some weeks later I remember racing home from Henley Regatta in a fever of impatience to receive and unpack the great cases. It was a wonderful experience. I found myself in possession of box after box of creatures that I had known only in museums or books. It was a rich aid very representative of Western Europe, for all his contemporaries in France, Germany, Switzerland, Italy and Spain had sent him specimens from their own countries and, what is more important, what are known as "types", that is, part of the original material on which some species new to science had been given names and described. Such "type" specimens have a very special value for they are the final appeal when any question of identity arises and their possession immensely increases the importance and value of a collection—and also the responsibility of the owner.

A few years later he wrote to bid me farewell and left me as a legacy all his notes and drawings of earwigs and his collection of these insects. This was in reality of very great value, for the material was the subject of numerous articles of his in various scientific publications and so any doubts about identity could be settled.

Notes on Microlepidoptera

The best time for collecting larvae of the genera *Lithocolletis* and *Nepticula* is late September and early October, the majority of the species being then in the larval stage.

The larvae of *Lithocolletis anderidae* Fletch. mine the lower leaves of seedling birches growing amongst heather. The tenanted seedlings are often completely hidden by the heather and being absent from view are often overlooked. Perhaps this is the reason why *anderidae* is not represented in many collections: I have never found mines of this species on the larger birch bushes.

The position chosen for the mine of *anderidae* is also a favourite for *Nepticula betulicola* Stt., some leaves of the seedling containing three or four larvae.

The mine of *L. cavella* Zell. occupies nearly the whole of the underside of a birch leaf, and is easily distinguished from the mine made by larvae of *L. ulmifoliella* Hb.; it should be sought on birch bushes about four feet high.

The lower leaves in hedges and of seedlings seem to be favoured by other species of *Lithocolletis* for example, *L. schreeberella* Fabr. on elm, *L. lautella* Zell. on oak, and *L. lantanella* Schrank on wayfaring tree, etc.

A green patch on a fallen leaf frequently indicates the presence of the larva of a *Nepticula*. Larvae of *N. argyropeza* Zell. on aspen, *N. quinquella* Bed. on oak and *N. intimella* Zell. on willow can all be obtained by gathering fallen leaves showing a green patch. As the larvae of these species mine leaves rather high up on the tree, gathering fallen leaves seems to be the only practical method of obtaining larvae.

Mines of *Lithocolletis* are best kept through the winter in a largish flowerpot half filled with damp sand with a layer of small pebbles above; cover the pot with muslin and stand it out of doors protected from rain. The sand should be kept *damp* not *wet*.

L. T. FORD.

In October 1954, the mines of *Nepticula pomella* Vaughan were particularly plentiful in my garden, and produced a good series of moths this spring. This autumn, the mines are very scarce on the same trees, as are the mines of *Lithocolletis concomitella* Bankes, although mines were plentiful last autumn. On the other hand, I find mines of *L. corylifoliella* Haw. are particularly plentiful on apple, hawthorn and nut.

Examining the fallen beech leaves on Hosey Common, near Westerham, last autumn for the green patches indicative of the presence of a *Nepticula* larva, I must have examined more than four hundred leaves containing occupied mines, and of these only three of the occupants were alive. Of the others, a few were parasitized by *Chalcidae* but the vast majority seemed to have succumbed to the very damp weather and were brown and flaccid. It will be interesting to see the state of affairs in the same locality this year when the leaves have started to fall.

I have had little time for field work during the past season, but such time as I have been able to spend seemed to indicate that while *L. corylifoliella* was well in evidence, the equally common *L. ulmifoliella* Hb. was by no means plentiful.

The somewhat less common *L. spinicolella* Zell. seemed to be in reasonable numbers, but this insect must be carefully sought, as the mine when the larva is about full-fed is apt to look dry, and the mined portion when viewed from the underside is drawn up into a single line, giving the impression of an empty spring mine.

These random notings would seem to show that weather conditions inimical to one species would seem to leave very close species quite unaffected, and no positive conclusions can be adduced.

S. N. A. J.

Current Notes

When is a species not a species? Or, more pertinently, when *is* a species a species? The more minutely we examine nature the harder does it become to define exactly what a species is. Certainly it cannot be defined on any single attribute and even when many characters are taken into consideration the demarcation is not always clear. Dr. C. A. Clarke has done much work towards defining the problem of speciation in certain *Papilios* of North America. In the American magazine *Evolution*, Vol. IX, p. 182 *et seq.* he and Dr. P. M. Sheppard, of Oxford, give "A Preliminary Report on the Genetics of the Machaon Group of Swallowtail Butterflies".

Investigations were carried out by these observers on four 'species' of *Papilio*, *viz.*:—*Papilio machaon* L., *P. brevicauda* Sandars, *P. polyxenes asterius* Cram., and *P. zelicaon* Lucas. These were bred and variously hybridised by the method of hand mating described in this Journal (*Ent. Rec.* **64**: 98-100). Analysis of the results took into account such features as ground colour, shape and size of eye-spots, as well as various larval characteristics. All the hybrids proved infertile when sib matings were attempted but fertile eggs were obtained from back-crossing to a parent strain. The fertility of these back crosses varied and this was believed to indicate the status of speciation.

The results of these investigations seem to indicate that these butterflies are probably sub-species actively evolving into full species—a status which will be reached relatively soon (in terms of evolutionary time). There are many similar species—complexes in the world and the methods detailed show the way for these problems to be tackled. Work is now in active progress on the genetics of certain African mimetic *Papilios* and results of this will be awaited with keen interest.

N. L. B.

In *The Scottish Naturalist*, Vol. 66: 101-121, J. L. Campbell of Canna gives a list of the macro-lepidoptera he has observed there. He lists 190 species which he has taken on this comparatively small island of the Inner Hebrides and this is a remarkable number for such an isolated area. Mr. Campbell has done much useful and interesting work on the lepidoptera of both Canna and Barra and it seems a pity in the present work that he could not have seen fit to make this a definitive list of all the species known to occur on his island home. For example, Heslop Harrison in the *Entom.*, LXXIX, p. 147 *et seq.* records *Agrotis agathina*, *Celaena haworthii* and *Citrea lutea* as occurring on Canna. These are not listed by Campbell. The more interesting species taken on the island are: *Dianthoecia caesia*, *Dasypolia templi* and *Nyssia zonaria*. The paper as a whole makes interesting reading and anyone with the ambition to visit these islands will find much useful information therein.

N. L. B.

A new book by Captain Bernard Acworth, R.N., has just come to our hands, *Bird and Butterfly Mysteries, Realities of Migration*, and we hope to review it in our next issue. From the Preface we gather that it is an amalgamation of the author's two previous books, *The Cuckoo and other Bird Mysteries* and *Butterfly Miracles and Mysteries*, "subject to considerable amendments, additions, and deletions". Those of our readers who enjoyed speculating on the heresies (as they were to some, but by no means to all) contained in these two stimulating works will look forward to reading the present volume.

We have received the following from a correspondent and invite the comments of our readers upon it:—"I am always a little dubious of quoting humorous experiences in a scientific magazine, but I do feel strongly that as much detail should be supplied in an article as possible, with a view to helping other collectors, who may take a holiday like myself each year and are to a great extent relying on some useful and practical information. I am really amazed at the unhelpfulness of so many collectors these days, and I feel that when a collector wishes to take a long trip on his hobby it should be possible to obtain information so as to minimize the many obstacles which are encountered in locating insects. I have drawn blanks many times on such long trips for the want of useful details. Please don't think that I want my collecting to be all cut and dried, but life is short for the collector of any section of natural history in which he wishes to improve his knowledge. I usually turn for information to my old *Records* prior to 1900, and I must say the articles were written much more interestingly then; but of course records written fifty years ago do not always hold good to-day, particularly having regard to the rapid changes of habitats in our times."

Notes and Observations

CUCULLIA ABSINTHII LINN. IN LEICESTERSHIRE.—During the past few years *C. absinthii* has appeared in many parts of the country in which it was previously unknown. In August and early September this year I discovered the larvae feeding on mugwort (*Artemisia vulgaris* L.) on patches of uncultivated ground on the outskirts of Leicester. I believe its more usual foodplant is the common wormwood, *A. absinthium* L., but this plant seems to be scarce here. Since I am not aware of previous records of this species for our county I thought the discovery worthy of mention.—D. TOZER, 98 Copdale Road, Leicester. 25.ix.55.

CELASTRINA ARGIOLUS LINN. IN OCTOBER.—On 1st October last I took a ♂ *C. argiolus* flying about the ivy which surrounds my study window here. The specimen was very worn but neither chipped nor torn in any way.—J. ANTONY THOMPSON, Milton Lodge School, Wells, Somerset. 3.x.55.

IMMIGRANTS IN INVERNESS-SHIRE.—Further to my note in the September *Record* (**67**: 237) I have to record a ♂ specimen of *Loxostege sticticalis* Linn. in my m.v. trap on 14th August which I accidentally omitted from that note. As far as I can ascertain, these records of *Rhodometra sacraria* Linn., *Palpita unionalis* Hb., and *L. sticticalis* Linn. are "furthest north" ones. September has produced three *Nomophila noctuella* Schiff. at the m.v. trap, a common migrant not often seen as far north as this, and a fair number of *Plusia gamma* Linn., the last a fresh ♂ at honeysuckle on 12th October, two days before a heavy snowfall!—Commander G. W. Harper, R.N., Neadaich, Newtonmore, Inverness-shire. 21.x.55.

A Gynandromorph and Asymmetrical Plebeius argus Linn.—On the 11th July last I took at Worplesdon in Surrey a gynandromorph, which was also asymmetrical, *Plebeius argus*. The left side was normal female, and the right side wings were blued and smaller. Except for this it is a replica of Figure 4 in Frohawk's *Varieties of British Butterflies*. I am thinking this may perhaps be unique.—E. E. Johnson, Highfield House, Portsmouth Road, Guildford, Surrey. 17.x.55.

Aglais urticae L. ab. nigra in Surrey.—On the 9th July at Albury in Surrey I was fortunate enough to take a fine specimen of *Aglais urticae* ab. *nigra*. It is unnecessary to describe it, as it is identical in all respects with Figure 4 in Frohawk's *Varieties of British Butterflies*.—E. E. Johnson, Highfield House, Portsmouth Road, Guildford, Surrey. 17.x.55.

The 1955 Season in N.E. Hampshire.—On the whole the year has been disappointing, only April, June, and, especially, July being up to or above average where lepidoptera are concerned. Early spring and autumn were poorest, the latter expectedly so in view of the cold and damp of the same season last year. A few 'good things' did turn up, of course: they always do. My 'first ever' *Plusia ni* came to light on 25th July, but *Euphyia cuculata* on 17th July was very welcome as I had never taken it nearer than Guildford. *Schoenobius mucronellus* and *Pyrausta aurata* were new to me, whilst *Perinephela lancealis* has become a regular visitor to light.

We appear to lie off the main channels of immigration and I searched in vain for larvae of *Celerio galii*. A little farther west, Sir Robert Saundby (*Ent. Rec.* **67**: 249) found *Vanessa cardui* numerous whereas I met with less than a dozen during the whole season, and only half that number of *Colias croceus*. *Vanessa atalanta*, however, reached an all-time record here: larvae were everywhere in August and early September and I collected many hundreds (I have one still, 22nd October), whilst imagines could be counted in dozens in gardens where Michaelmas daisies were in bloom. *Pieris brassicae* was in force in late summer and caused much damage. I came across but three *Macroglossum stellatarum*, but *Sympetrum flaveolum* Linn. (Odon.) turned up at Frimley on 5th August.

Turning to residents, a total of 4 *Hyloicus pinastri* contrasted poorly with nearly 60 in 1949, when the species was locally at its peak (*Entom.* lxxxii, No. 1039). Though *Aglais urticae* was very abundant, I reared thousands and was rewarded by two fine *nigrocaria* in May: butterflies were generally scarce. I did not meet with *Polyommatus icarus* until 31st July and *Thecla quercus* until 4th September, a solitary worn ♀. Over the border in Surrey *Lysandra coridon* and *Hesperia comma* were abundant at the beginning of August, but I have seen no *Lysandra bellargus* this year. *L. bellargus* is by no means the only species that has escaped me: I have seen no *Strymon w-album*, *Callophrys rubi*, *Argynnis cydippe*, *A. aglaia*, *Hemaris fuciformis*, *H.*

tityus, *Smerinthus ocellata* (except a few larvae), *Sphinx ligustri*, *Mimas tiliae*, and *Deilephila porcellus*, besides many smaller fry, all of which were formerly common. The destruction of habitats by the increasing industrialisation of the area, with the inevitable increase in population, have combined with the indifferent summers since 1951 to bring about the present position. It is really rather sad: a good naturalist looks forward with joy each year to meeting the same old friends in the same old place and time: for that reason he never over-collects. Their annual appearance helps to hide the creeping on of years—delusion, perhaps, but no matter. One would end what is largely a tale of woe in brighter vein: *Melanargia galathea* at least appears to be on the up-grade here, and I have met with it in several fresh localities, even in woodland rides.—A. W. RICHARDS, Farnborough, Hants. 23.x.55.

COLLECTING ON THE WELSH COAST.—In the course of ten days' holiday in Wales this year my wife and I spent 24th-27th June at the seaside village of Borth in Cardiganshire, just south of the estuary of the river Dovey. A mile or two inland from the village I was delighted to find a wide stretch of boggy ground on which *Coenonympha tullia* Mull. was flying. This was an unexpected bonus, as I did not anticipate seeing it till we moved on to Bala. (In the event, search of the Arenig bogs near Bala failed completely to turn it up). The butterfly was fairly plentiful, though a strong wind made it not easy to catch on the very wet and rather rough ground.

There was a good deal of sweet gale growing on the bog, and while I was chasing *tullia* my wife took a box and collected larvae of *Orthosia gracilis* Schiff. These were in considerable numbers. A few fell victims to a parasite at an early age, and after going to ground about eight became black torpedo-shaped parasitic cocoons; but on the whole the larvae seemed unusually healthy, taking to sallow with enthusiasm, and I have about 50 pupae. One of them went on feeding and growing, and proved to be *Xylena vetusta* Hb., but unfortunately I disturbed it too soon after it had gone down and it failed to pupate. *Parasemia plantaginis* L. was also flying on the bog in small numbers. They did not seem to differ much from my southern English specimens, but I took a small clutch of eggs from the only female seen. The larvae proved unexpectedly anxious to hibernate, in spite of the hot July and August, but after a session in the airing cupboard some of them consented to go on feeding, and the first imagines appeared on 11th September.

I saw several specimens of *Eustrotia uncula* Clerck, an insect which has not been noted very often in Wales but is probably overlooked, and took a single specimen each of *Epirrhoe rivata* Hb. and *Dyscia fagaria* Thunb.; Mr. Geoffrey Cole took a few more of this last moth in the same spot some days later. Finally, on lifting a rug on which my wife had been sitting I found a larva of *Philudoria potatoria* L., which duly pupated and produced a very ordinary male. It was not until a month after my return that I obtained vols. iv and v of the *Proceedings* of the Chester Society of Natural History, Literature and Art, and found therein Mr. Gordon Smith's list of Cardiganshire lepidoptera, with "Borth bog" as a locality.

Of my few captures in two days' collecting, *fagaria* is not included for the county and *plantaginis, gracilis, vetusta* and *rivata* are not recorded from Borth. Obviously little collecting has been done in this corner of Cardiganshire; I myself did not go out after dark, as the nights were cold and clear with a strong wind; but probably it would not be difficult to turn up here a number of insects new to the county list. The terrain is varied; there is for example an extensive reed-bed adjoining the *tullia* bog, and a mile or so away at Ynys-las at the mouth of the Dovey there is a considerable range of sandhills, where I saw quite incredible numbers of *Zygaena filipendulae* L. flying. Altogether it is a most attractive spot to which I hope to return.—J. O. T. Howard, Wycherley, Deepdene Wood, Dorking, Surrey. 12.x.55.

DIPTERA

Some Further Notes on Bred Diptera

By M. Niblett, F.R.E.S.

The following notes refer to a number of species of Diptera recently bred, or to which I have not previously referred. All localities are in Surrey unless otherwise stated.

Trypetidae.

Chaetorellia jaceae Dsv.: This is a species that I have searched for unsuccessfully for years, during which period I have had thousands of flower-heads of *Centaurea nigra* in which the larvae live. In January 1954 Prof. Varley of Oxford University obtained a number of flower-heads of *C. nigra* from Wicken Fen, Cambs., these were found to contain three larvae of *jaceae* which he very kindly sent to me, from these two flies emerged in mid-June.

Ditricha guttularis Mg.: On 25.vii.53 at Lacey Green, several galls of this species were found on stem bases of *Achillea millefolium*, from these several of the flies emerged at the end of the month.

Paroxyna misella Lw.: At Epsom Common, 9.vi.53, several galls of this species were found at the tops of stems of *Artemisia vulgaris*; towards the end of the month a number of the flies emerged from them.

Spilographa zoë Mg.: The larvae of this species are not uncommon in leaf-mines on *Chrysanthemum* and *Senecio* spp. from May to July, they leave the mines to pupate in the soil, the flies emerging during July and August of the same year. On 20.ix.53 several plants of *Senecio vulgaris* were found with larvae in the stems where they pupated; the flies emerged 4.v.54.

Tephritis cometa Lw.: In early August 1953 I collected 76 flower-heads of *Cirsium arvense* at Epsom Downs, at the end of the month four flies of this species emerged. I believe this rare Trypetid has only been bred before by Dr. Hering in Germany.

Urophora solstitialis L.: After many years' searching for this insect I was fortunate in finding a few galls in flower-heads of *Carduus nutans* on 4.ix.52, at Banstead Downs; the larvae were heavily parasitized by Chalcids, but in the following June a number of the Trypetids emerged. There have been many records of *solstitialis*, but the majority have been based upon wrong identifications of either the insects or the galls.

Xyphosia miliaria Schrnk.: From a few flower-heads of *Centaurea* *nigra* collected at Wallington, 20.viii.55, one fly of this species emerged 12.ix.55; this is an unrecorded host plant of *miliaria*.

MUSCIDAE.

Chirosia parvicornis Zett.: The larvae of this species live in the rolled tips of pinnules of bracken in July, the larvae leave them to pupate in the soil, the flies emerging in May and June of the following year. This species has been classed as a gall causer under the name of *Anthomyia signata* Brske. for many years, and more recently as a leaf miner. In my opinion it is neither; the larvae feed on the undersurface of the midrib of the pinnule, thus weakening it and allowing more vigorous growth to the unattacked portion and so causing the curling.

Chirosia setifemur Ringd.: This is another bracken feeding species, in this case the larvae are definitely leaf miners; the mines with larvae in them may be found in early July, they leave the mines to pupate in the soil and the flies emerge in May of the following year. Mr J. E. Collin who identified the flies informs me that this species has frequently been mistaken for *Pycnoglossa cinerosa* Zett.

Delia flavidipennis Stein.: I have already recorded breeding this species in May and June of the second year from larvae found in seed capsules of *Silene inflata*; on 5.ix. 50 a few capsules were collected at Addington, one larva went to earth to pupate and the fly emerged on the ninth of the month.

Heterostylus pratensis Mg.: From a few flower-heads of *Hypochoeris radicata* collected at Ashtead Common on 9.vi.53, several larvae of this species left them to pupate in earth and two flies emerged in early June of the following year. This is I believe an unrecorded host plant for this species, the larvae are usually to be found in flower-heads of *Leontodon hispidium* in fair numbers.

Pegomyia albimargo Pand.: In June 1938 a few larvae of this species were found in mined leaves of Red Campion; these left the mines to pupate in the soil and one fly emerged in the following month; several larvae were found in 1954 and 1955 from which again in each case one fly emerged in July.

Pegomyia dentiens Pand.: The larvae of this species feed and pupate in stems of *Filipendula ulmaria*, the flies emerging in April of the second year; all stems examined after the end of that month were found to contain only empty puparia.

Pegomyia nigritarsis Zett.: The larvae of this species live in mines on leaves of various species of *Rumex*, I have found these larvae from May to October, the emergence times are rather peculiar. Flies from May larvae have emerged in June and September of the first year, and in April of the second; from June and July larvae they have emerged in July or in the following April, while all flies from later larvae have emerged in April of the second year.

TACHINIDAE.

Digonochaeta setipennis Fln.: A withered stem of Asparagus given to me in November was found to contain, in addition to a number of earwigs, six pupae of this species attached to the inner wall of the stem, from these the flies emerged in May of the following year; this fly is, I understand, a regular parasite of earwigs.

Some interesting Diptera of the Freshfield area of Lancashire

By Peter Skidmore.

All the following species were taken in the area to the north west of Freshfield station between the railway line and the coast.

Tipula nigra L. (Tipulidae). 1 ♂ and 1 ♀ taken in a marshy clearing in the pine wood on the 17th July 1955. Other specimens were seen on this day and also on the 24th July.

Tabuda anilis L. (Therevidae). 1 ♂ taken on the 22nd May 1955, and another ♂ on the 18th June 1955. The first specimen was swept from a species of dwarf willow, which grows profusely on the drier parts of the dunes; the second one was taken from a clump of stunted poplars growing by the "Flash", a strip of marshy ground running parallel to the shore in the direction of Ainsdale.

Phthiria pulicaria Mik. (Bombyliidae). Several specimens taken on the 18th June and on the 17th July 1955. The flies were seen in numbers on both dates around the flowers of various Hawkweeds (Hieracium).

Myopa testacea L. (Conopidae). One specimen taken on the 22nd May 1955 by sweeping dwarf willow on the edge of the pine wood.

Rivellia syngenesiae F. (Platystomidae). 1 ♂ and 1 ♀ taken on the 18th June and others on the 17th and 28th July 1955. The flies were seen in the more marshy parts.

Herina frondescentiae L. (Otitidae). 1 ♂ and 1 ♀ swept from a clump of Juncus growing in one of the marshes.

Tetanops myopina Fall. (Otitidae). 1 ♂ swept from Marram grass growing near the shore on the 27th June 1953.

Terrelia serratulae L. (Trypetidae). 1 ♂ and 1 ♀ swept from thistle head, 28th July 1955.

Tylos corrigiolatus L. (Tylidae). 1 ♂ and 1 ♀ swept from side of ditch in the Flash on the 17th July 1955.

Sciomyza ventralis Fall. (Sciomyzidae). Several specimens taken on the 18th June by sweeping long grass growing at the foot of a high ridge of sand dunes.

Dichetophora obliterata F. (Sciomyzidae). Very common on the drier parts of the dunes, especially amongst the Marram grass, on the 2nd September 1954. 1 ♂ 17th July 1955, and a few in early September 1955.

Ilione albiseta Scop. (Sciomyzidae). Very common on the Flash from May to September 1955, specimens being taken regularly each month.

Helcomyza ustulata Curt. (Dryomyzidae). Common on the shore. Specimens taken in May and September 1955

Oedoparea buccata Fall. (Coelopidae). 1 ♂ swept from Marram grass growing by the shore on the 24th July 1955.

Neoleria maritima Ville. (Helomyzidae). 1 ♂ swept from the branches of an Austrian pine on the 2nd September 1955.

Meromyza pratorum Mg. (Chloropidae). Several specimens swept from Marram growing near the shore on the 17th July 1955.

Servillia ursina Mg. (Tachinidae). A single specimen taken on the 29th April 1954. This example has more the appearance of *S. lurida* F., being small and dark, with extensive orange side markings on the abdomen.

Protocalliphora sordida Zett. (Calliphoridae). 1 ♂ from flower of Sea Buckthorn (Hippophaë), taken on the 24th April 1954.

SYMPHOROMYIA CRASSICORNIS (PANZ.) (PHAGIONIDAE) IN LANCASHIRE.—Normally, in a warm, fairly dry season, *S. crassicornis* appears round about the 6th June, and continues for a week or rather more. Last year they did not appear until the end of June, and were still on the wing in mid July. This year I found one specimen at Freshfield in late June, but it was not until the end of the second week in July that it began to appear on the moor here. The flight period lasted this year for about a week.

Verrall's dates perhaps are based on Scottish data, because normally the species has disappeared before 24th June.

The two local headquarters are on barren upland pasture. The ground is very stony—millstone grit, and the vegetation almost entirely consisting of two or three species of Gramineae. There are no trees at all growing at this altitude (about 1,000 feet above sea level), and the flies are usually found in large numbers resting on the dry stone walls, which separate the fields. They are most in evidence in hot dry weather.

I have not found the larva of this fly but it probably breeds in the turf, as quoted in Verrall (1909, *British Flies* V. *Stratiomyidae*, etc.).—PETER SKIDMORE, 'Roses', Grains Road, Shaw, Lancs. 17.ix.1955.

Fifty Years Ago

(From *The Entomologist's Record* of 1905).

AMBLYPTILIA ACANTHODACTYLA IN ESSEX.—Referring to the Rev. G. H. Raynor's note I would like to say that, as an old collector in the county of Essex, I frequently met with *Amblyptilia acanthodactyla*, and occasionally in numbers. I find, on referring to my notebook, that, on September 3rd, 1879, I captured 36 in a little green lane about two miles from Witham. *Ononis spinosa* was very plentiful in that lane. I also find that in that year I bred several from larvae taken from the *O. spinosa*. I considered the insect fairly common in Essex.—W. D. CANSDALE.

Current Literature

DWELLERS IN DARKNESS. An Introduction to the Study of Termites, by Dr. S. H. Skaife. Pp. x—134, XIV monochrome plates and 40 text figures. Longmans Green & Co. Price 25/-.

We must all have heard of the horrific tales of travellers in Darkest Africa how houses have suddenly collapsed without warning in the middle of the night. These tragedies being due to the ravages of unheard, unseen and unsuspected termites. Here is a volume describing the results of some 20 years' observation on a species of termite harmless to Man and his works—the Black Mound Termite (*Amitermes atlanticus*), of the Cape Province of South Africa.

The introductory chapters put the insect in perspective with the rest of the termites of the world. Termites are among the oldest of living creatures—they probably existed some 200 million years ago. Their closest relatives—the cockroaches—are also of enormous antiquity. There are known at the present day some 1861 species of living termites and, in addition, 68 species of fossil forms.

All aspects of the life of *A. atlanticus* are dealt with in most readable fashion, the book having been written for the non-specialist. The founding, growth and decay of a colony; the development and life of the various castes; the control of the colony; predators, parasites and comensals associated with the termites are all dealt with in detail. There is an interesting chapter concerned with "Feeding the Multitude" and here are described experiments on feeding the insects with the most bizarre substances, *e.g.*, mammalian sex hormones to see if these " . . . had any effect on the sexual development of the termites". From what we know of the method of sex-determination in insects it would have been surprising if these had had any effect.

The little that is known of the control of the colony as a whole is considered in the chapter on "The Seat of Authority". In fact, nothing really is known about how the colonies are controlled as social units. All that is certain is that there is a ruthless totalitarianism.

The methods of study adopted by Dr. Skaife are described in their contexts throughout the book and there is also a special chapter on methods of studying termites in the laboratory. The book ends with a guide to the literature and an adequate index.

So fascinating is the study of these insects that one is left at the end regretting the absence of a (harmless, of course) species of termite in this country. The 14 monochrome plates and the 40 text figures adequately illustrate a work which is well produced.

N. L. B.

A STUDY OF THE INSECTS LIVING ON THE WAYFARING TREE. By K. C. Side. Leaflet No. 27 of the Amateur Entomologist's Society, 1 West Ham Lane, London, E.15. Price 1/7½ post free.

It is a good exercise for any entomologist to make a study of all the insects associated with a particular habitat—either a restricted area or a single species of plant. In this pamphlet Mr. Side gives us the results of his eighteen months' study of the Wayfaring Tree (*Viburnum lantana* L.) in an area of the North Downs. He has accumulated an interesting list of species and has many observations to make on their inter-relations. Of considerable interest in his diagram illlustrating the various food-chains associated with the insects on the tree. From this one sees especially the importance of the Aphids in the economy of the insects feeding indirectly on the tree. There is an appendix giving a complete list of all the insects found. This rather loses its usefulness in that many of the lesser known orders are identified only to generic or even higher level. Full specific identifications would have improved the value of the work. There is a short bibliography mainly to key works and the common mistake of attributing Meyrick's Revised Hand-book to 1927 is made. It was actually published in 1928 (vide *Entom. Rec.*, I, p. 50).

N. L. B.

EXCHANGES AND WANTS

Wanted.—A subscriber wishes to purchase rare and extreme forms (British) of *Lysandra coridon* Poda.—*Box No. 5, c/o the Assistant Editor, No. 4 Windhill, Bishop's Stortford, Herts.*

Wanted.—Living female pupae of *Saturnia pavonia* or any other large female pupa (*Laothoe populi, Smerinthus ocellata*, etc.) for work on assembling scents. Cash or exchange.—*Dr. H. B. D. Kettlewell, Genetics Laboratory, Department of Zoology, University Museum, Oxford.*

Wanted.—Distribution records in Great Britain and Ireland (especially Ireland) of *Erebia epiphron* Knoch (Small Mountain Ringlet). Localities will be kept secret if so desired.—*Dr. J. F. D. Frazer, Stone House, Boxley, Maidstone, Kent.*

Wanted.—Old insect sale catalogues pre 1952. Also early Bulletins of the Amateur Entomologist's Society. Exchange for other books or cash.—*L. Christie, 137 Gleneldon Road, Streatham, London, S.W.16.*

Wanted.—Lepidoptera of North West Surrey. I am preparing an account of the distribution of Macro-lepidoptera and Pyralidina in Surrey, north and west of the line Weybridge, Woking, Worplesdon, Normandy, Ash Vale (inclusive). Records with full data would be welcome, even of common species: Pyrales and Plume Moths particularly needed.—*R. F. Bretherton, Ottershaw Cottage, Ottershaw, Chertsey, Surrey.*

Wanted.—Pinned or alcohol preserved adult winter gnats (Diptera, Trichoceridae), particularly members of individual swarms, for study of variation of species. Postage refunded.—*B. R. Laurence, Birkbeck College, London, W.C.1.*

Exchange or Purchase.—Edric Higginbottom of "The Butterfly Nursery", Hathersage, Derbyshire, invites entomologists having healthy vigorous livestock of British or Foreign Lepidoptera, surplus to their own requirements, to give him the opportunity of exchanging or purchasing at a good price.

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S. H. SKAIFE, D.Sc., F.R.S.S.Af.

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LONGMANS

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Butterfly Notes, 1955

By T. D. Fearnehough.

The season was started at Easter during a visit to the Isle of Wight. The weather was warm and sunny for most of the period 9th-16th April, and such conditions were ideal for finding larvae of the Glanville fritillary. The thrill of seeing the red-headed caterpillars in their natural haunts for the first time was soon experienced. Clusters of larvae were found at a number of places miles apart along the southern coastline and these varied remarkably in their stages of growth. Near Bembridge a colony of very small larvae was found which had apparently only just commenced to feed, whereas near Ventnor large larvae were seen, some of them ready for pupation. Enough were selected to give the pleasure of rearing the species but not enough to cause the Insect Protection Committee any sleepless nights. The only butterflies noted during the period were several each of Peacocks and Small Tortoiseshells and a brace of Small Whites.

At home spring was remarkable for the long continued wretched weather culminating in a snow blizzard on 17th May which covered my flowering rockery plants to a depth of 2-3 inches. The two main roads between Sheffield and Manchester were both blocked by snowdrifts. On 15th May a pleasant day was spent in a Northamptonshire wood beating for larvae of the Black Hairstreak. The expenditure of much energy by three of us produced only four small larvae. A few fresh Speckled Wood were seen on the wing.

It was not until Whitsuntide brought a warm sunny spell that collecting could be resumed. A long arranged collecting week-end from home had to be abandoned owing to the threatened railway strike, but on 28th May a quick trip was made into Lincolnshire which produced several Chequered Skipper females. After my arrival home that night the railway strike actually started. The skippers laid a couple of dozen eggs, and on hatching the larvae were patiently placed individually on blades of Couch Grass arranged with the stems in a narrow-necked bottle of water. They quickly spun their leaves into tubes and showed no hesitation in feeding on this grass. Fortunately it was not found necessary to change the food more often than once a week. When the larvae outgrew Couch Grass they were given the variegated Ribbon Grass which is commonly grown in gardens, and its broad leaves gave them plenty of scope for homemaking. The caterpillars were very sensitive to disturbance and at the slightest provocation wriggled backwards out of their tubes and dropped. A number were lost in this way. I wondered how they fared when a stiff breeze was blowing in their natural haunts and imagined an endless succession of climbs up grass stems and drops off. However, several larvae reached full size and settled for hibernation in sealed grass tubes. An interesting species to rear, but not a suitable subject for rearing in more than small numbers.

On 30th May, a hot brilliant day, Green Hairstreaks were fresh out on a Derbyshire moorland in surprising numbers, almost every bilberry patch being graced by their presence. Next day the weather remained sunny and a visit was made to the carboniferous limestone area of

Derbyshire. There was little on the wing and the colony of dwarf Orange-tips had, with the common Whites, received a knock-out blow from the weather. At the time of the May blizzard they would be 'colouring up' in pupae as were some in my breeding-cage and which in this critical stage perished. For the second year the Holly Blue was not observed in its local headquarters.

Only a solitary member of the spring brood of Small Copper was found. This being a female was kept for eggs and these being fertile indicated that at least one more Copper had been around. From this brood came a rather nice specimen. The main feature is the enlarged spotting on a clear copper ground, but the reduced copper bands on the hindwings and the well-developed tails are also of interest.

In July Common Blues appeared in numbers below average and were not generally up to our standard for size. A damaged female having radiated forewing spots was found, but she gave few eggs and only half a dozen surviving larvae are now hibernating. A female specimen was captured having dark shaded streaks on one hindwing. Microscopic examination showed these to be due to the presence of black scales and a reduction in the number of light greyish scales which normally predominate in the affected area. There is also an abnormal growth of long 'hair' scales far exceeding the normal growth in the corresponding positions on the opposite wing.

Another visit to the limestone country on 18th July was again unproductive. Three Dark Green fritillaries were seen and a few Common Blues. Even Small Heaths were in short supply. A *radiata* form of the Brown Argus was found amongst the few examined, but it was a damaged male and was released. The weather improved during July and settled into dry sunny conditions which were to prevail for three months and cause serious drought. However, in my district butterflies remained scarce and even the Meadow Brown did not appear in my immediate neighbourhood until the end of July. There is perhaps some hope that the fine summer and autumn will have started butterflies upon an upward surge.

The first half of August was spent at Swanage (Dorset), this being my first visit to that popular collecting area. After the monotonous scarcity of insects at home this district was a wonderland of butterflies, twenty-eight species being recorded. The first objective was of course that of generations of visiting lepidopterists, the Lulworth Skipper. A short series of immaculate specimens was soon acquired, and attention was then turned to Chalk-hill Blues, which were emerging in great strength. Some pleasant hours were spent in leisurely looking them over for variation, and a nice specimen of *tri-I-nigrum* B. & L. was found as well as several minor varieties. A colony was found which was producing *obsoleta* forms, but unfortunately they were mostly worn and must have emerged earlier than the typical specimens, which were generally fresh. Search for another wanted species, the Silver-spotted Skipper, was unsuccessful. Plenty of exercise was obtained in chasing Clouded Yellows on the steep slopes before a couple of females were secured for egg-laying. Later a fine series was reared including specimens of near ab. *obsoleta* and near ab. *excessa*.

During the period great numbers of Common Whites came in from the sea and it was possible during the evenings to examine fifty or sixty per hour at rest on the grassy slopes overlooking the sea. The hundreds of specimens I did examine showed no significant variation. On my final day I caught a Small Copper female which had an extra spot in the centre of the basal area of each forewing. The marking was also present in the corresponding underside positions. This form is I believe a very rare one in Britain and I have not met with it before. The female was brought home alive and after laying eighteen eggs she mysteriously escaped. As a final blow the eggs proved infertile.

At the end of August a typical female Small Copper was caught near home and yet another brood of the species reared. This time a reward came in a fine specimen of ab. *infra-radiata* Tutt. The enlarged forewing spots are worthy of notice for this feature does not necessarily accompany *infra-radiata*. (See South: *Brit. Butterflies*, Plate 119, Fig. 2, and Tutt: *Brit. Butterflies*, Vol. I, Plate XIII, Fig. 5).

A brood of Wall Brown was reared from a female captured in August in a South Yorkshire locality, and my luck now being 'well in' again, several fine aberrations were obtained. These are being made the subject of a separate note.

In early September, Red Admirals, Small Tortoiseshells, and Peacocks appeared in small numbers and Large Whites became common. The latter were presumably foreigners come into the district, for first brood specimens had been so very scarce. I found a feebly fluttering female in the garden which had the forewing spots joined by a strong black bar, but she was very worn and had laid all her eggs. Later the larvae became plentiful in gardens and from large ones collected at random a couple of hundred pupae were obtained. Very few larvae had been attacked by parasites. A few imagines emerged, but most of the pupae are wintering.

The end of September brought the end of the butterflies, and so finished a season notable for a wretched spring, a fine summer, and a general scarcity of butterflies, but giving enough cabinet additions to sustain interest during the dark months and stimulate hope for good things in store next year.

Notes on Collecting in 1955

By the Rev. F. M. B. Carr.

(*Continued from page 260.*)

The fine weather of July continued throughout August. On the 10th Mr. and Mrs. B. C. Barton and I spent a delightful day on the South Devon coast. The forecast was none too good, and when we arrived at our destination soon after mid-day the sky was so overcast that we decided to have our lunch on the beach within easy reach of the car in the hope that the clouds would pass. This was a good move, for by the time we had finished the sun broke through and the afternoon could scarcely have been better. We made our way to the undercliff, and there found the second brood of *Leptidea sinapis* L. in good numbers. *Colias croceus* Fourc. was fairly common, and two ab. *helice* were noted. *Vanessa cardui* L. and *Lysandra bellargus* Rott. were here seen more commonly than elsewhere this season. A very heavy thunderstorm most obligingly delayed its full fury till we were safely back in the car with a satisfactory bag.

During August moths continued to come in large numbers to light at Mudeford, including many species already recorded for July. Unfortunately it cannot be said that a very distinguished company attended the nightly gatherings in my room. A worn *Eurois occulta* L. put in an appearance on 11th August, and a single *Rhodometra sacraria* L. on the 27th. Both of these are additions to my Mudeford list. I also had 4 *Nonagria dissoluta* Tr. Of this species two only had been taken in previous seasons. Other moths that came to light during August included *Pterostoma palpina* Cl., *Drepana binaria* Hufn., *Agrotis vestigialis* Hufn., *Hadena cucubali* Schf. (several, usually very seldom seen here), *Atethmia xerampelina* Esp., *Caradrina ambigua* Schf. (scarcer than usual), *Nonagria typhae* Thun. (a new record), *Plusia festucae* L. (two in August and two in September, only one previous record), several very diminutive *P. gamma* L., *Ecliptopera silaceata* Schf., *Epione repandaria* Hufn., *Galleria mellonella* L., *Pyrausta martialis* Guen., *Aglossa pinguinalis* L., *Hypsopygia glaucinalis* L., and *Eulia formosana* Gay. *Agrotis ipsilon* Hufn. was abundant, whereas in 1954 it was unusually scarce. Towards the end of August Mr. Barton's m.v. trap at Highcliffe was crowded out with this species. *Diarsia rubi* View. was also notably abundant. I have never had so many *Catocala nupta* L. at light. I always consider this moth to be much addicted to sugar, but this year not one!

Sugaring was indeed a most dismal failure, and continued to be so throughout the autumn. A few *Asphalia diluta* Schf. were attracted one cold evening in the New Forest, and the only moth of any interest on my Mudeford patches was a solitary *Aporophyla lutulenta* Schf. I omitted to record my autumn sugaring for 1954, but amongst a host of commoner species were 10 *Lithophane semibrunnea* Haw., *L. socia* Hufn. and 6 *Leucania l-album* L., also a new record in *Amathes glareosa* Esp.

Light was almost as disappointing as sugar during September and October. Mr. Barton's light at Highcliffe produced many fine fresh *Tholera popularis* Fab. of both sexes. I have never seen this common species at Mudeford. I also took *A. xerampelina* at Highcliffe. At Mudeford two more *Nycterosea obstipata* Fab. came to light, also *Gortyna flavago* Schf., *Aporophyla nigra* Haw., *Agrochola macilenta* Hb., *Rhizedra lutosa* Hb., *Larentia clavaria* Haw., *Thera firmata* Hb., and *Deuteronomos fuscantaria* Haw., the last-named being a new record.

Except on 10th August in Devon *Colias croceus* was seldom seen until October when it became fairly frequent in the Christchurch area. *Polygonia c-album* L. was notably scarce and *Vanessa atalanta* very much in evidence. *Macroglossum stellatarum* L. was busy at flowers in Mudeford. Hardly a day passed over a long period in the autumn without my seeing one or more of these moths darting about in the garden. At my tobacco flowers only one *Herse convolvuli* L. appeared. This was on 9th September.

Though the autumn was disappointing in most respects there were certainly more larvae about than for some time past. Amongst the larvae beaten by Mr. Barton and me in the New Forest were *Harpyia furcula* Cl., *Notodonta dromedarius* L., *Pterostoma palpina* Cl., *Gastro-*

pacha quercifolia L., *Drepana falcataria* L., *D. cultraria* Fab., *D. lacertinaria* L., *Atolmis rubricollis* L., *Colocasia coryli* L., *Cosymbia pendularia* Cl. (*orbicularia* Hb.), *C. albipunctata* Hufn. (*pendularia* Cl.), *C. punctaria* L., *C. linearia* Hb., *Boarmia roboraria* Schf., etc.

In conclusion I append a note on *G. quercifolia.* On 12th July Mr. Barton took a female of this moth at light at Highcliffe, from which he obtained eggs. Shortly after the eggs hatched Mr. Barton gave me about 20 newly-emerged larvae. They were feeding on apple. The remainder, feeding on hawthorn, were housed by him in a garden shed. These latter have behaved themselves in a seemly manner. Like good little Lappets they are neither larger nor smaller for their age than they should be. If no disaster befalls them they will sit up and take notice that food is before them when the spring comes. My Lappets on the contrary were coddled indoors in a temperature of 60° to 64° F. Devouring apple leaves, they rapidly attained to a most unseemly size. By the end of September half of them had spun up. One died and one ceased to take any interest in food, and will probably follow suit. The rest spun up in October. The first moth, a male, appeared on 19th October. Seven more males and eight females have emerged up to the time of writing (10th November). All the specimens are very dark (thorax, abdomen and wings) and correspond to Tutt's description of ab. *purpurascens* (*Brit. Lep.*, Vol. 3, p. 205).

Martin's Close, Mudeford, Christchurch.

Notes on the 1955 Season in Cambridge

By B. O. C. Gardiner.

Butterflies were very little in evidence, but no special field work for these was undertaken. It was however noted that the Autumn Vanessids, apart from *Aglais urticae*, were fewer than last year at the Buddleia blossom.

Compared with last year some moths usually rather common have been conspicuous by their scarcity. Others rare in this vicinity have been turned up. The following list, whilst by no means attempting to be a complete record, gives some details of the more interesting species recorded. For the sake of comparison the comparative abundance of species noted last year have also been included. (See *Ent. Rec.*, **66**: 243.)

Pieris brassicae L. In spite of the large migrations into the country this year this butterfly has not been unduly abundant around Cambridge, and was in fact much less common than *P. rapae*. Parasitism by *Apanteles glomeratus* was however very heavy. Nearly 300 larvae collected wild in September proved to be 100% parasitised. Also of great interest is the discovery of a virus disease attacking the larvae. In the past *Pieris* spp. have appeared to be immune from virus attack. This or a similar virus has also been found in larvae of *P. rapae*. It is possible that this virus may be of use to control future outbreaks of this species in the same way that myxomatosis has decimated the rabbit population.

Acherontia atropos L. Five have been reliably recorded this year. One to light on 19th August; a pair found *in cop.* on a house wall, and two larvae.

Mimas tiliae L. Usually a very common species, only one was taken at light this year. In 1954 larvae of this species died in large numbers of virus disease.

Laothoë populi L. As common as last year.

Sphinx ligustri L. Slightly more common than last year, but not taken until 14th June.

Harpyia hermelina Göze (=*bifida* Hüb.). Commoner than last year, some twenty specimens being seen in all.

Harpyia furcula Cl. Two taken in August—a rather late date for this species. Not previously encountered.

Cerura vinula L. Conspicuous by its absence, only one coming to light, and no larvae being found. Usually very common. Larvae I attempted to rear in 1954 all died of disease and it would appear that this species suffered the same fate as *tiliae*.

Drymonia dodonaea Schf. Not seen at all this year although common in 1954.

Tethea ocularis L. Commoner than ever this year. A good half of the specimens seen are of a rather dark form, but no true melanics were taken.

Philudoria potatoria L. Not one seen this year.

Spilosoma lubricipeda L. Very common, has regained its usual abundance.

Spilosoma lutea Hufn. Very common, including some nice rayed varieties.

Arctia caja L. A fine yellow hindwinged variety was taken at Sawston, a few miles from Cambridge.

Cybosia mesomella L. One taken, which is rather surprising as it is a fenland species.

Acronycta leporina L. One taken. An unexpected capture in the city and does not appear to have been recorded recently.

Eurois occulta L. One taken. Rare in Cambridgeshire and not previously recorded from the city.

Mamestra brassicae L. Common this year.

Melanchra persicariae L. Common, but not abundant as it was last year.

Dianthaecia conspersa Schf. One taken. Rare in Cambridgeshire and not previously recorded from the city.

Eremobia ochroleuca Schf. Not uncommon. Taken some three miles from the nearest chalk outcrop. No recent records.

Dipterygia scabriuscula L. Several taken. Not previously encountered though common in several fens well to the north of Cambridge.

Hydraecia petasitis Dbld. One taken. Only previous records for the county are at Wicken and Wisbech, both prior to 1878.

Nonagria geminipuncta Haw. Fairly common. Not encountered before, but has been recorded as very common at Chesterton in 1936. Taken at two places half a mile apart. No reeds could be found nearby and to come from Chesterton the moths would have had to fly some two miles over built-up areas.

Plusia festucae L. Common this year in the City. Not previously encountered.

Catocala nupta L. This species was much scarcer than usual this year.

Nothing of note was taken amongst the Geometridae, but an interesting observation was made concerning these moths and the operation of m.v. traps. The m.v. lamp that I operate is hung just inside an upstairs window. Under these conditions there have on many nights been more Geometrids than Noctuids inside the trap (which consists of a large framed net round the window on the inside). On the few occasions when I have examined the trap at dawn, the number of moths settled outside the house and on the lawn has been very few compared with what is inside. While no accurate counts were made I estimated that 80-90% of all moths present were in the trap. This is a considerably higher total than that reported by Clifford Craufurd for a box-type trap operated on a lawn. (See *Ent. Rec.*, **67**: 193). A Robinson trap operated half a mile away by Mr. C. F. Rivers took few Geometrids and examination at dawn revealed a large number sitting outside the trap.

Amongst the Pyralids two species worthy of note were taken.

Pyrausta nubilalis Hübn. Previously recorded as new to the Cambridge list, one specimen was again taken this year.

Loxostege sticticalis Linn. Five were caught, four by myself and one by Mr. Rivers half a mile from where mine were taken. It would appear that this species is now established in Cambridge, and in view of the notices about its occurrence in other parts of the country it seems that 1955 has been a good year for it, and it is well distributed outside the Breckland.

To conclude, it is interesting to note that amongst the Hymenoptera it has been a good year for beekeepers whilst wasps have been very scarce. This is the opposite of what I recorded last year.

Lepidoptera at Chandler's Ford, Hants

By B. Goater.

(*Continued from page 254.*)

Species marked with an asterisk having been taken at m.v. light in my garden.

Satyridae.

Pararge aegeria L. Common in the woods.

P. megera L. Fairly common.

Melanargia galathea L. Occasional in Cranbury Park—probably wandering from colonies on the chalk.

Satyrus semele L. The heath which was the stronghold of this and other species was built over during the war. Now uncommon.

Maniola tithonus L. Apparently decreasing.

M. jurtina L. Common.

Coenonympha pamphilus L. Common.

Aphantopus hyperantus L. Locally common.

Nymphalidae.

Argynnis selene Schiff. Has decreased and is almost extinct.

A. euphrosyne L. Like the last, has decreased considerably since 1944.

A. aglaia L. Seen occasionally in Cranbury Park.

A. cydippe L. Has been seen in Cranbury Park.

A. paphia L. In Cranbury Park, but very scarce now. f. *valezina* occurs.

Euphydryas aurinia Rott. A small colony in Cranbury Park.

Vanessa atalanta L. Rather erratic, but usually fairly common in late summer.

V. cardui L. Seen nearly every year in greater or lesser abundance.

Aglais urticae L. Common.

Nymphalis io L. Common.

N. antiopa L. One seen by me, 6th October 1945.

Polygonia c-album L. Quite common.

Limenitis camilla L. Not seen for several years, though before the war it was common.

NEMEOBIIDAE.

Hamearis lucina L. Not common; two localities in Cranbury Park.

LYCAENIDAE.

Plebeius argus L. I have taken occasional specimens in one locality only. I never saw it on the heath.

Polyommatus icarus Rott. Fairly common locally.

Lysandra coridon Poda. Very occasional in Cranbury Park.

Celastrina argiolus L. A wanderer, but often seen.

Lycaena phlaeas L. Common most years but not recently.

Callophrys rubi L. Not common.

Thecla quercus L. Common, especially in Cranbury Park.

PIERIDAE.

Pieris brassicae L. Usually common.

P. rapae L. Common.

P. napi L. Common.

Anthocharis cardamines L. Fairly common.

Colias croceus Fourc. Occasional.

Gonepteryx rhamni L. Common.

HESPERIIDAE.

Erynnis tages L. Usually common.

Pyrgus malvae L. Fairly common, Cranbury Park.

Thymelicus sylvestris Poda. Common.

Ochlodes venata Br. & Grey. Common.

SPHINGIDAE.

Herse convolvuli L. Occasional. I have taken only one personally.

**Sphinx ligustri* L. Fairly common. Light.

**Hyloicus pinastri* L. Common since 1945.

**Mimas tiliae* L. A few at light every year, otherwise rarely seen in any stage.

**Smerinthus ocellata* L. Common.

**Laothoe populi* L. Few at light.

Macroglossum stellatarum L. Sometimes common; seen most years.

Celerio livornica Esp. One resting in grass, 26th July 1946.

**Deilephila elpenor* L. Very common at light, and larvae numerous.

**D. porcellus* L. Scarce at light, 1951 and 1952.

NOTODONTIDAE.

**Harpyia hermelina* Goeze. Nine at light, 1951.

**H. furcula* Cl. Not common.

**Cerura vinula* L. Not common.

**Stauropus fagi* L. Males rather common at light; occasional dark specimens occur.
**Drymonia dodonaea* Schiff. Males common at light.
**Chaonia ruficornis* Hufn. Males very common at light; females occasional.
**Pheosia tremula* Cl. Rather rare, light.
**P. gnoma.* Common at light.
**Notodonta ziczac* L. Common.
**N. dromedarius* L. Common.
**N. anceps* Goeze. Common, light.
**Lophopteryx capucina* L. Common.
**Odontosia carmelita* Esp. Two or three in the garden each year.
**Pterostoma palpina* L. Not common.
**Phalera bucephala* L. Very common.
**Clostera curtula* L. One at light, 9th May 1953.

THYATIRIDAE.

**Habrosyne pyritoides* Hufn. Abundant at light.
**Thyatira batis* L. Fairly common.
**Tethea ocularis* L. Common in 1951; light.
**T. or* Schiff. Four only, all at light.
**T. duplaris* L. Fairly common.
**Asphalia diluta* Schiff. Common.
**Achlya flavicornis* L. Very common.
**Polyploca ridens* Fab. Fairly common, light.

LYMANTRIIDAE.

**Orgyia antiqua* L. Common. Male at light, 14th September 1951.
**Dasychira pudibunda* L. Very common; occasional melanic specimens
**Euproctis similis* Fuessl. Common.
**Lymantria monacha* L. Rather common; males at light.

LASIOCAMPIDAE.

**Malacosoma neustria* L. Common.
**Poecilocampa populi* L. Common.
Lasiocampa quercus L. Male seen in Cranbury Park, 26th August 1954.
Macrothylacia rubi L. Formerly abundant on the heath; last seen 1950.
**Philudoria potatoria* L. Not common.
**Gastropacha quercifolia* L. Rare at light.

DREPANIDAE.

**Drepana falcataria* L. Common.
**D. binaria* Hufn. Fairly common.
**D. cultraria* Fab. Rare.
**D. lacertinaria* L. Common.
**Cilix glaucata* Scop. Not common.

ARCTIIDAE.

**Nola cucullatella* L. Fairly common at light.
**N. strigula* Schiff. Very rare.
**Celama confusalis* H.-S. Fairly common.
**Comacla senex* Hübn. Occasional at light.
**Miltochrista miniata* Forst. Common at light.
**Cybosia mesomella* L. Occasional.

**Eilema deplana* Esp. Few at light.

**E. griseola* Hübn. Fairly common.

**E. lurideola* Zinck. Common at light.

**E. complana* L. Common at light.

**E. sororcula* Hufn. Fairly common at light, arriving late.

**Spilosoma lubricipeda* L. Very common.

**S. lutea* Hufn. Very common.

**Cycnia mendica* Cl. Not common. Two only, one of each sex, at light, 22nd May 1953.

**Phragmatobia fuliginosa* L. Sometimes abundant.

**Arctia caja* L. Fairly common.

**A. villica* L. Two only.

**Callimorpha jacobaeae* L. Larvae often abundant.

AGROTIDAE.

**Euxoa nigricans* L. Fairly common; more at flowers of *Buddleia* than at light.

**Agrotis segetum* Schiff. Has not been common for some years.

**A. clavis* Hufn. Several at light.

**A. puta* Hübn. Common; two broods.

**A. exclamationis* L. Very Common.

**A. ipsilon* Hufn. Irregular; sometimes common.

**Lycophotia varia* Vill. Common wherever there is heathy ground.

Peridroma porphyrea Schiff. Irregular. Few since 1949, when very common.

Rhyacia simulans Hufn. One found indoors, resting on the door of a breeding cage (!), June 1944. One at Valerian, 23rd June 1945. None seen since.

Graphiphora augur Fab. One at a bedroom light, June 1944. Not seen since.

**Diarsia brunnea* Schiff. Locally rather common.

**D. festiva* Schiff. Common.

**D. rubi* View. A few at light.

**Ochropleura plecta* L. Common.

**Amathes agathina* Dup. Formerly common on the heath. The only one seen recently was at light, 5th September 1951.

**A. castanea* Esp. Fairly common locally at sugar.

**A. baja* Schiff. Common.

**A. c-nigrum* L. Very common.

**A. triangulum* Schiff. Fairly common.

**A. sexstrigata* Haw. Fairly common in grassy places.

(*To be continued.*)

Some experiences with the Larva of *Apatele alni* Linn.

By H. SYMES, M.A.

Apatele alni L. is one of several moths that used to be regarded as great rarities before the introduction of the m.v. light, but since then have been taken in considerable numbers. In former years, the species came sparingly to sugar, but unlike some of the other members of its family, such as *psi*, *leporina* and *rumicis*, it was hardly ever found at rest on a post or tree trunk. I have heard of only one specimen being taken in this way, by the late W. H. Jackson on a fence near Brockenhurst, Hampshire, many years ago. I do not suppose that the larva is found any more frequently to-day than it was when South wrote "any one who may obtain even a single example in a season may congratulate himself on a good find". In the course of forty years I have found ten larvae, all by searching or coming upon one by accident, and two more were given to me, but having a larva is a very different thing from breeding a moth, for it is indeed a case of there being "many a slip 'twixt cup and lip". In fact from these twelve larvae I have bred only four moths, though there is hope of another from the larva I found this year. I have kept a careful record of all these larvae, noting the food-plant on which each was found and the cause of the various failures.

My first acquaintance with this larva was made under rather unusual circumstances. I was out beating for larvae with an entomologist of great experience and somewhat acquisitive habits, and at the end of a successful afternoon we were starting to return home with well-filled boxes (for those were the days), when I saw a tiny black larva on a leaf of a diminutive sallow. I picked the leaf and showed it to my friend, asking him if he knew what the larva was. He said no, but it was probably one of the *Acronycta* genus. In a fit of generosity or indifference, I offered it to him, but he said he did not want to be bothered with it. After some hesitation, I decided not to throw it away but to keep it, out of curiosity. It was sadly neglected. For its accommodation I could only spare a glass-topped pill-box, in which a sallow leaf soon got dry, and sometimes I forgot to give it a fresh one every day. Still, it throve on this careless treatment, and changed its skin at intervals. In those days I knew nothing of the "bird's dirt" stages of the larva, but was familiar with the photograph by W. J. Lucas in 'South', so it was not until after the final moult that I recognised its identity, and realised what a prize I had. This was one of the few larvae that produced a moth. The policy of "catch 'em young and treat 'em rough" had succeeded. I think it is possible to kill a larva by kindness.

There was an element of luck about the way I came to find another larva. I was returning from a walk in the New Forest when I saw someone approaching who was likely to buttonhole me. Wishing to avoid this, I turned aside from the road down a footpath that led to a small stream. On reaching the bridge across this, I stood and waited. Almost at once I saw on an alder tree under my very eyes a larva of *alni* in its penultimate instar, feeding vigorously. Ever since then, I have had rather a warm spot in my heart for the person aforesaid, especially as I bred a fine moth a year later.

The larva of *alni* has a large variety of foodplants, but I have found it on only four: two on sallow (E. Somerset), four on hazel (E. Somerset, Malvern, E. Dorset, Cranborne Chase), three on alder (Brockenhurst (two), Malvern), and one on aspen (near Oxford). The two larvae given to me were found on alder in E. Somerset. I have never beaten it from oak, but have heard of a number obtained in this way, and saw one that had just been beaten from oak by the Rev. F. M. B. Carr, close to the spot where I found one on hazel a few minutes later. Of the ten larvae I have found, the two sallow feeders were both in their first instar, and both produced moths: two found on hazel were in their penultimate and two in their last instar: the three on alder were all in their penultimate instar, and so was that found on aspen. All these larvae were found between 14th July and 17th August.

What went wrong with the larvae that failed to produce a moth? Three were ichneumoned, two failed to form a proper pupa, after entering a piece of elder twig in one case, and virgin cork in the other (this was the only larva that would not enter a piece of elder twig, with which they are always provided), and two died as the result of failing to eat their old skin after the last moult.

A bred specimen of *alni* is a lovely moth. I do not know what proportion of those that come to the m.v. light are really perfect specimens, but none of four that I saw taken in this way in a wood in East Dorset on 21st June this year was up to the standard of a bred specimen, and two were very far below it.

A Week in Scotland, and Notes on *Zygaena exulans* Hoch.

By A. J. Showler, M.Sc.

I left Spean Bridge early on 9th July after a wonderful ride through the Highlands, musing that at least my National Service had given me a free trip to Scotland.

The weather was scorching (and remained so for a week) but even then there was still some snow on the Nevis range, and as noted later, on the Cairngorms.

Cycling up Glen Spean a number of insects were seen, and in some cases taken:—*Coenonympha pamphilus*, *C. tullia*, *Maniola jurtina*, *Argynnis selene*, *Odezia atrata*, *Scopula ternata*, and *Lasiocampa quercus callunae* were amongst them. Approaching Newtonmore, a fine *Argynnis aglaia* was noted. A brief but pleasant call was made on Commander Harper, who mentioned that *Erebia epiphron* was swarming above the Drumochter Pass, and gave me very useful information about *Zygaena exulans*, my special quarry.

I passed through Aviemore, but was unfortunately unable to stop there in the time at my disposal. At Nethybridge, *A. selene* was seen again, while near Tomintoul a black-headed gull was watched in its unsuccessful chase after *callunae*. In the evening, at Tomintoul, *Xanthorhöe montanata* was swarming and single specimens of *Abrostola tripartita* and *X. munitata* were taken.

On 10th July I moved on to Braemar, noting *Polyommatus icarus* near Corgaff. One fresh specimen of *Entephria caesiata* obligingly settled on my cycle while I was taking a brief rest by the roadside. Reaching Braemar, and having obtained the necessary permission, I set off up a rather unpromising mountain in search of *Zygaena exulans*. On the way up, *C. tullia*, *A. selene*, *A. aglaia*, *S. ternata*, *Ortholitha scotica* and *Lycophotia varia* were observed. As I approached the flat top of the mountain I was becoming a little dubious of seeing *exulans*, but then just at that moment one of these small dingy burnets buzzed slowly past. *Psodos coracina* was then seen and the hideout of *exulans* soon discovered. On approaching a clump of Birds-foot Trefoil (*Lotus corniculatus*) a dozen or more of the insects could be seen, and specimens selected as required. There were many flowering clumps of *Lotus*, and on and around the summit all were covered with *exulans*, while only one moth was noted on any other plant, that being a small seed-head of *Antennaria dioica.* Although hot and sunny, the insects were little inclined to fly, unless disturbed.

It seems probable that *Lotus* is the foodplant of this species; some larvae hatched from eggs deposited by captured females commenced feeding on it quite happily. Certainly the species was not to be found in the absence of *Lotus*, on a neighbouring though lower peak, nor the following day around Ben Macdhui (where no *Lotus* at all was seen) where Commander Harper tells me it does not occur, although claimed to do so. What are the special habitat requirements of *Zygaena exulans?* The only obviously unusual property of the locality for this species seems to be that the flat top of the mountain is illuminated for the whole of the long Highland summer day, though many other mountains must also have this good fortune, yet do not provide a habitat for the moth.

The following day, as mentioned, the mountains around Ben Macdhui produced only *P. coracina*, several in good condition being fished out of the small pools common at about 2,500 feet. Near the summit of Ben Macdhui one *A. aglaia* was seen; probably it could have claimed to be the butterfly at the greatest height in the British Isles that day. On descending, many *C. tullia* were seen in Glen Derry, whilst in Glen Luibeg *Lyncometra ocellata*, *Perizoma blandiata* and *Colostygia pectinataria* were taken.

The next day was uneventful; a fresh *A. selene* was taken on the hills above Pitlochry and *C. tullia* and *A. aglaia* were again seen.

On 13th July I moved on via Loch Tummel and Loch Rannoch to Rannoch station. With plenty of spare time, I climbed the mountain which overlooks the station but took only *tullia.* The remainder of the day took me via Bridge of Orchy and Glen Coe to Fort William, but although providing magnificent scenery it provided no further insects.

14th July opened with rain, but by the time I had reached Mallaig the sun was once more shining. Several richly marked *Eumenis semele* were on the wing above the little fishing village, but with the net not to hand only one could be caught. The island of Rhum tempted a search for *Zygaena purpuralis* but time would not permit the journey. I promised myself that for the future as I boarded the train for King's Cross, after a very enjoyable, though all too brief tour of the Highlands.

Some Notes on a Book Sale

By J. O. T. Howard.

It has always been a source of surprise to me that while the collectors of insects are many the collectors of the beautiful old books on insects are few. Robert Adkin had a fine library, so had Henry J. Turner and W. G. Sheldon. The late S. G. Castle Russell had a wonderful collection of butterflies, but his books were sold in 17 lots at Sotheby's on 9th November last. That they reached the total of £757 was mainly due to the presence of two of Jacob Hübner's works. A copy of his *Sammlung Europäischer Schmetterlinge*, formerly in the library of H. T. Stainton, was sold for £410. The book was published at Augsburg between 1796 and 1824, and is of fundamental importance. Very few of the known copies are complete; this one contained all the 789 lovely coloured plates, but some of the text was lacking. There was also a copy of Hübner's *Geschichte Europäischer Schmetterlinge*, Augsburg, [1806-23], which should contain 456 coloured plates of larvae This book again is nearly always imperfect, and here 4 plates and some of the text were missing. It sold for £140. A third lot in this sale was also by Hübner; it was a modern reprint of his *Sammlung Exotischer Schmetterlinge*, Brussels, 1894-1908, an imperfect copy with only 329 of the excellent plates, which went for £18.

The sale opened with a volume described as containing 33 watercolours by S. L. Mosley of European butterflies and their larvae, pupae and foodplants. Actually, the species were all British. To my eye, these were far more finished drawings than many of the plates in the same artist's published volume of varieties, but perhaps have not the same importance; they fetched £23. A copy of the published work, *Illustrations of Varieties of British Lepidoptera*, reached £34. It was issued in 14 parts between 1878 and 1885, and very few copies were completed. The Preface and a leaf of description for each plate were printed, but each of the 73 plates is an original watercolour drawing. In 1931 F. J. Griffin gave in this magazine (**43**: 161) a full collation of the copy in the library of the Royal Entomological Society, formerly the property of W. F. Kirby, an original subscriber. This copy exactly agreed with that collation, but inserted in it were 8 extra plates of Lycaenidae. The descriptions of these were carefully written in brownish ink, and the plates were apparently specially done for the late owner, as there is a receipt dated from Huddersfield, July 31, 1912: "Mr. S. G. C. Russell Dr. to S. L. Mosley. 56 paintings of Lycaena genus @ 6d. each." But the artist cheated himself; there are 57 insects. The plates are numbered 6-13, following the original plates 1-5 of Lycaenidae in the volume.

Castle Russell particularly valued his volumes of original watercolours. The second lot to be sold contained 12 by F. W. Frohawk, 5 by Horace Knight, 5 by N. G. Wykes, and 3 others, illustrating over a hundred insects. What the catalogue did not point out was that these were all more or less extreme varieties, fully documented, and many of them from Castle Russell's own collection. They started with the superb black *machaon* bred by him in 1927, and included the two celebrated *galathea*, one black, the other white, which reached very high prices at auction a few years ago. The high quality of the work of these three artists is well known, and I considered myself lucky to buy this volume for £13.

Another series of 30 watercolours, this time of tropical butterflies, rather a mixed lot of an earlier period, fetched £13, and then came a collection of 76 really exquisite paintings by Horace Knight of British butterflies. These, all signed and dated 1918-19, fetched £34.

The remaining lots were not exciting. A complete set of this magazine, Vols. 1-27 bound in half calf, the remainder in parts, sold for £26. The Proceedings and Transactions of the South London, 1886 to date, all in parts, fetched £14. The folio Frohawk, which went up to about £9 just after the war, was down to £2. Woodhouse, *The Butterfly Fauna of Ceylon*, 1949, fetched £3 10s.; I believe this is in print at £5.

The *coridon* monograph by Bright and Leeds, a morocco bound copy signed by the authors, fetched £3. Hagen, *Bibliotheca Entomologica*, Leipzig, 1862-63, was perhaps a little high at £13, but it is an important reference book. The first edition of Frohawk's *Varieties* shot up to £12 before it was killed by the publication of the second edition in 1946; a copy inscribed by the author was bundled up with Vol. I of Barrett's *Lepidoptera* and a quantity of other books, and was sold for £5. A volume containing about 60 coloured plates from various old books also sold for £5, and finally 30s. was paid for a large bundle of entomological pamphlets, into which had somehow wandered a copy in the original parts of *Maria Martin, or the Murder in the Red Barn*.

This was not a fine library, but there were some books of unusual interest, and I shall have a personal reason for remembering the sale.

Memories of a Naturalist—IV

By Malcolm Burr, D.Sc.

Another distinguished French entomologist with whom I entered into correspondence was Captain Adrien Finot. He was typical of the old fashioned, well bred officer of the imperial army. He had been a prisoner of war after Sedan and on his release withdrew to his property at Fontainebleau, where he built a house and surrounded the grounds with a high wall, as though to cut himself off from the modern world, which he hated. To forget the detested Republic he devoted himself to photography, carpentry and the study of the Orthoptera and allied insects. After some correspondence he invited me to pay him a visit.

It was a great experience spending a week with this fine old French gentleman of the old school in his beautiful home. He took me for strolls in the lovely forest of Fontainebleau, and in the evening I listened to the yarns of his early days. I had never before met a Bonapartist, in fact I hardly knew that any survived! He was a staunch imperialist.

"In my young days," he said, "France was prosperous and happy. But today . . ." and he shrugged his shoulders in contempt.

"But there are good French statesmen today?" I ventured.

"No, they are all Republicans and atheists."

"But what about men like Sadi Carnot, Felix Faure and Emil Loubet? Surely Loubet is respectable?"

"Bah!" he answered in a withering voice; "*outils des Francmaçons*!"

France was a pioneer in politics and I still wonder whether we—on the whole—are happier under a socialist government than we were in the old days of frank imperialism.

I knew another survivor of those far off days, one who was older than the empire of Napoleon III and remembered even the days of his greater uncle. One morning I was sitting working in the Natural History Museum in Brussels when a venerable figure entered. His long silvery hair hanging to his shoulders gave him the appearance of a man from another age: he was dressed entirely in black, the trousers very tight and his coat wide and ample, the cut of an earlier age. In fact, I am tempted to think now that he was wearing knee breeches, stockings and shoes with silver buckles! He carried a very long walking-stick. I guessed instantly who it must be, none other than the Baron de Selys Longchamps, at that time the recognised authority upon the Odonata or dragon-flies.

I rose at once to meet him and had an interesting talk with a Belgian nobleman who had been born in Paris in the year 1802, when Napoleon, having signed the treaty of Amiens with England, and posing as the restorer of peace to the world, was assuming the toga of First Consul. His manner was punctilious but perfectly natural, and his charm seemed to convey the impression that it was I and not he who was conferring the honour of meeting.

Afterwards we exchanged letters on several occasions, and after his death the family invited me to write a full report upon his collection of Orthoptera. There was one little paper of his, the title of which remained in my memory, *Le Declin d'une Faunule.* It was an account of the impoverishment, inevitable under the march of industry, of the fauna of his family estate, the parish of Waremme, near Liège, observed by him over a period of seventy years.

I also entered into correspondence with Don Ignacio Bolivar, Director of the Royal Natural History Museum of Madrid, who had published his monograph of the Orthoptera of Spain in the year that I was born, 1878. I did my best to write to him in Spanish, although he knew French perfectly well and could read English. I felt it a matter of pride to correspond with everybody I could in his own language. This was admirable practice, as they replied in their own tongues, which was helpful in reading the extensive literature of my subject. It had also the effect of stimulating the sympathy of my victims. Later I found this a precious asset.

In my first year at Oxford I had felt it was high time I started on a serious piece of work. The book on British Orthoptera was a good start, but it was mainly a compilation and I wanted to do something original, something that would stand. Inspiration came from admiration of the series of monographs by Brunner von Wattenwyl, *Der Altmeister*, as German entomologists affectionately called the greatest authority. I needed a small group of insects and my choice fell upon a little family of grasshoppers called the *Eumastacidae*, of which there were not three dozen species known and those only from tropical regions. They are queer, attractive little insects, differing in design and other ways from the ordinary grasshoppers and nothing at all was known of their manner of life. Specimens were rare in collections and it is doubtful whether any single kind was represented by half a dozen specimens in all the museums in the world put together.

So I wrote round. Bolivar sent me the few they had in Madrid, but it was mainly the grand old Brunner, whose wonderful collection of Orthoptera was by far the greatest in existence, who provided most of the material. Instantly he sent me all he had. London and Oxford had one or two more, and so I managed to assemble a representation of a little over thirty species. There was no accepted classification of the group, so I set to work to establish one, virtually starting from scratch. I knew that it was pioneer work and was very careful to do my best to avoid blunders. When it was complete, illustrated by excellent drawings by my friend Edgar Schuster, I sent the manuscript to Bolivar. I had written it in French, which Paul Errera had looked through and corrected for me, but was anxious to see it published in the *Anales* of the Royal Natural History Society of Spain. I knew well the limits of my own ignorance and the poverty of the material available and so gave it the title of *Essai sur les Eumastacides.* I was intensely proud of my first serious effort at original taxonomy and eagerly scanned the scientific press of Europe for notices. It served its purpose for, although the number of known species was doubled in a few years, a generation had to wait before a more modern comprehensive work upon the group appeared and to this day there is no complete monograph and the classification I tentatively established still stands. I had to wait thirty years before I made the acquaintance of my little friends in their natural haunts. The man who was destined to produce the comprehensive work was at that time a tiny child in Madrid, Candido, the son of Don Ignacio Bolivar.

Another elderly—and famous—entomologist with whom I corresponded was Henri de Saussure, of Lausanne, grandson, I believe, of the first man to reach the top of Mt. Blanc. Brunner told me that he was hypochondriac and lived a very reserved life, never seeing anybody. But—perhaps owing to my boyish enthusiasm—he wrote me a charming letter, enclosing his signed portrait and a photograph of his home near Lausanne, where he invited me to pay him a visit. Unfortunately I was never able to take advantage of his hospitality, for soon it was too late. He was the only one of the big European orthopterists of the older generation whom I never met.

On various occasions I had made the acquaintance of several German entomologists, on visits to Hamburg and Berlin. Dr. Hermann Krauss, a medical practitioner in Tübingen, wrote delightful letters. I paid a visit to that pleasant old south German university town and found a burly, bearded, jovial man, who perspired freely when he took me for a walk in the fields of a July afternoon. When we got back to the town, he asked me to wait in a *bierhalle* while he slipped across to his house for a moment. But the sight of other men drinking that golden, icy, lager when I was parched with thirst was more than I could bear, and I swallowed a litre as though it had been a thimblefull. Presently Krauss came in and ordered two.

"Can you drink beer?" he asked me.

I pointed to my empty mug. He was astonished, still more so when the second one went down to join the first.

"I did not know Englishmen could drink beer," he said.

To his amusement I took home a little grey kitten that had attached itself to me, and in subsequent letters his little boys made frequent enquiries after its health. The Boer war was then in full swing and when I told him that the cat had been lost in the woods—perhaps shot by a gamekeeper—Krauss wrote that his little Hans suggested it had gone off to join the Boer army to take vengeance against its abductor. Fifteen years later that same Hans took his revenge, for after the first world war, when I wrote to Krauss to enquire how he was getting on, he replied that both his boys had come through and that Hans had been dropping bombs on Salonika. And so he had his revenge for the loss of his kitten!*

One morning there appeared in the pages of *The Entomologist* a

[*See footnote on page 322.]

letter from a Mrs. Nicholl, an elderly lady who devoted her summers to collecting butterflies in out-of-the-way countries. She announced that she intended going to the mountains of Bosnia and Hercegovina and appealed for any information likely to be useful. I wrote at once and said that I knew nothing whatever about Bosnia and Hercegovina but would be very grateful if she would bring me back some grasshoppers. That was in accordance with my policy of never letting the slightest opportunity slip by and on the whole it had fruitful results. She replied that she would see what she could do, but it would be better if I went myself. Was there any chance of seeing me out there?

"What an idea!" I cried. "I *will* go myself!"

I had already seen a good deal of the world, but Bosnia, Hercegovina, Montenegro and Albania seemed to me to belong to some other world, so utterly remote and exotic, so romantic and mysterious. *Omne ignotum pro magnifico*! The unknown and unfamiliar have always attracted me. All I knew of those wild countries was that they produced picturesque stamps, with queer alphabets which recalled Russian and Greek but were neither. So I announced my intention to my father, who with his habitual generosity produced the necessary cheque. I bought a few books about the countries and some grammars of the languages spoken there, which turned out to be Serbo-Croatian, which I at once set to work to learn.

There was a man at New College named Cozens-Hardy, somewhat my senior, a keen alpinist, who had paid a visit to Montenegro a year or two previously, and he gave me a letter of introduction to Bozhidar Petrovich. This was useful, as Bozhidar was not only a distinguished soldier, with great prestige for having beaten the Turks twice in the war of 1878, but cousin of the Prince and Minister of the Interior.

I decided to go via Vienna and take the opportunity of calling upon Brunner himself and returning to him the Eumastacidae which he had sent me for examination. His name carried such immense prestige. One of my Oxford chums, J. R. B. Hart, came with me for the first week or two. I found Brunner a dignified, handsome old gentleman with a short, square beard and old world manners. He was by birth a Swiss but had spent his life in the Austro-Hungarian service. He had been Director General of the imperial Posts and Telegraphs, and retired with the rank of Hofrath, or Aulic Counsellor. It was a wonderful experience for an enthusiastic youngster to see his amazing collection, to listen to his conversation, with his reminiscences of an utterly different world, of the days long before I was born.

"As a young man I knew Fischer von Waldheim," he said, mentioning a famous Russian entomologist of the forties.

"And when I am old," I replied, "I shall be proud to be able to say that I knew Brunner von Wattenwyl!"

After a few days in Vienna we proceeded to Budapest, where I made the acquaintance of Dr. Geza Horvath, Director of the Zoological Museum, whose life study had been the Hemiptera, plant bugs, and he had distinguished himself by his researches into the *Phylloxera* plague, which had almost destroyed the vineyards of Europe. Dr.

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*Burr was on active service at Salonika during the 1914-18 war, attached to the 27th Division. We shall hear more about this in a later instalment of the 'Memories'. See his book *Slouch Hat*.

Horvath detailed one of his staff to take me for an excursion into the country to get an idea of the insect life of the central European plain; but my activities were curtailed by a knife wound in the leg, which kept me to my bed for about ten days. Hart had to return to England, so I was thrown on my own resources for entertainment. I whiled away the time taking lessons in Serbian from the bedroom waiter and playing and talking with a man named Ignatz Szeberski, a shabby Pole with a highly individual knowledge of English, a hanger-on of the hotel, for which he used to perform certain shady services. When we played dominoes he always won, so for a change we played chess, and then I always won.

As soon as I could get about I moved on to Bucarest, where I had a correspondent named A. L. Montandon, a Swiss, who used to send me grasshoppers. He met me at the station, a tall, handsome man with polished manners, who at once invited me to stay with him in his villa outside the city. He took me for some wonderful excursions, especially to the forest of Comana, where I stood spellbound. The herbage was simply swarming with exotic-looking grasshoppers and crickets that I had known only from illustrations or museum specimens. Seldom in all my collecting experiences have I seen such variety and exuberance of insect life. It left an imperishable memory.

After a week I took the train across the plain of Hungary, with its immense white cattle with very long horns, and eventually reached the frontier of the Balkans at Bosna Brod on the river Save. Here my eyes were gladdened by my first glimpse of the orient, in the person of an old Bosniak peasant, wearing the old fashioned Turkish costume and, to my immense delight, an enormous bright pink turban.

But I was up against material difficulties. The unexpected expenses in Budapest had corroded my cash resources, and when the train left Brod I had but a few kreuzers in my pocket. When we stopped at some station my fellow travellers went to the buffet to get some lunch. But I had no money and felt very peckish and very miserable. All I had was my third-class ticket to Sarajevo. Presently they came back and my neighbour, a pleasant looking young Hungarian, asked me why I did not go to get something to eat: by that time I must surely be hungry. I tried to evade his question and he saw my embarrassment and added to it by asking point blank whether I had run out of money. I had to admit that this was the reason for my self-denial. He then pressed five florins on me and so nicely that I could not refuse. I never saw him again, but I deeply appreciated his courtesy and I corresponded with him for several years after.

I had of course advised my father that I had overspent my cash, and so was counting on a remittance in Sarajevo. Piling my luggage on a fly I drove to the Poste Restante. There was a letter in his writing all right, but its contents were disconcerting—"My dear boy, I daresay you are running short of cash by now. If so, drop me a line and I will send you some."

The position was uncomfortable. Here was I, alone in an unfamiliar country, with my luggage on a cab and not enough cash to pay the fare. So I drove to the only hotel, where the management recognised in me a callow English tourist, granted me credit, guaranteed my meals in the restaurant, gave me pocket money, and paid for a cable home.

I spent a most economical week waiting for the remittance. I took my coffee in a shack in a cab yard, where I got it for one kreuzer a cup instead of two by not taking sugar. I got friendly with the old Albanian who ran the shack and shared the macaroni with his little boy. These simple folk knew no German, so I had great benefit in practising my colloquial Serbian, and had a salutary lesson in democracy.

In due course the cash arrived and I paid my debts in time to join Mrs. Nicholl, who was escorted by a young Englishman from Barcelona named Whitty, in a tramp across the mountains to Mostar, chief town of Hercegovina.

The old lady, dry and shrivelled like a leaf, seemed impervious to either thirst or fatigue. She would ride all day long on the little ponies, keeping up a conversation that became tiring as she could not hear without a battered ear trumpet that soon became well known throughout the country. A well bred, cultured woman, speaking correct French and German, she left a permanent impression wherever she went. She had two important assets, money and influence. Under her patronage all doors were open and the mountain gendarmes offered us generous hospitality.

We rode or tramped for several days over the Karst, that massive limestone plateau which extends in one form or another from the country behind Venice right down to the eastern shores of the Adriatic into Greece. Often I turned in to sleep upon the bare ground, and one day, to escape from a threatening *bora*, the devastating north wind which at times sears the country, leaving a wake of death and devastation, we tramped for thirteen solid hours, down to the shelter of the town.

Eventually, after various little adventures, I arrived at Dubrovnik, the old Ragusa, a delightful little gem of a place with a dignified and romantic history. A little further down the coast is Cavtat, where I hired a boat with a couple of rowers to take me down to the entrance to the Boke Kotorske. We started in baking sunshine about four in the afternoon. The two men stood and pushed their oars, while I sat in the stern and held the tiller. I was wearing only a shirt and a pair of flannel shorts. Presently one of the men said to me:—

"Why don't you jump overboard and have a swim? We will wait for you."

It was tempting. The water was warm, clear as crystal and the bottom invisible, the sun hot. But, I reflected, while I was swimming round the boat the men could have rifled my pockets and I should have been in an inferior and defenceless situation. So I told a lie and said I could not swim.

They rowed on in silence for a time, and then the bigger one said:—

"Have you a revolver?"

"Yes, here it is," I answered, and took a small .38 Webley out of my trouser pocket and put it on the seat by my side.

They eased off to eat something at dusk, and then rowed on in silence, hour after hour, in the dark. The rhythmic crunch of the oars in the rowlocks nearly lulled me to sleep, but I kept awakening with a start and putting out my hand to make sure my weapon was still there.

It was in the small hours of the morning that we pulled up and made fast to a steamer lying there, looking immense in the faint light. The two men, exhausted by their prolonged effort, fell asleep in a heap in the bottom of the boat. It was difficult to find a nook for myself, but eventually I pulled off the rudder and laid it across the thwarts, so that it formed a bridge above the sleeping men, and laid down on that. I chuckled. It will puzzle you to rob me now, I thought!

After one or two further incidents I reached Cetinje on foot, the doll's house capital of the miniature principality of Montenegro. With a population of only about four thousand it had all the appurtenances, with several legations and an hotel, as well as the Prince's palace, the seat of the autocratic *Gosudar* of the Black Mountain, Prince Nikolas I., the last of his line.

The little country had barely emerged from the heroic stage and Nikolas was the picturesque lord of the land, whose word was law. He was an artful dodger who knew well how to capitalise the romance and originality of his country and exploit its appeal to the sentimentalists of Europe. During the forty years of his reign he doubled his territory, gained access to the sea, which he never made use of, and promoted himself from Prince to King. But the grim dungeons on the twin-coned island of Vranina in the Lake of Skadar were said to hold rotting many who ventured to oppose his imperious will. My friends used to cross themselves and hurry silently past under the high walls of the prison at Podgoritsa.

Viscountess Strangford, who knew him in 1860 when he was a young man fresh to the throne, described him as an "extraordinarily handsome man" and he was still an impressive figure when I saw him in 1898. Later, like most Montenegrins, in his old age he grew a scrubby beard and expanded into a portly old gentleman.

When the Balkan States achieved the apparently impossible and combined against Turkey in 1912 it was to tiny Montenegro that was given the honour of delivering the ultimatum which unleashed the war that signed the knell of Ottoman dominion in Europe. During the hostilities Nikolas besieged Skadar or Shkodra, the chief city of Northern Albania, in those days a Turkish *vilayet*. His splendid mountaineers were grand men at guerilla warfare but had neither the weapons nor the temperament for siege work, and the ancient fortress would have defied them to the end. But Nikolas relied, as usual, upon guile. The second in command of the defence was Essad Pasha, an Albanian chieftain from the Tirana district. He murdered his chief, as the result of an old vendetta, took over the command, and opened negotiations with Nikolas. The latter recognised Essad as King of Albania and allowed him to march his garrison out, ten thousand men, with all the honours of war. In return Essad recognised Nikolas's claim to Skadar. Nikolas entered the ancient city in triumph, his claim to which was purely sentimental; but he did not stay there long. Within twenty-four hours he received a peremptory ultimatum from Vienna which he could not possibly resist, and so he marched out again. The story went round that by artful gambling on the Vienna Stock Exchange at that critical time he made a very substantial fortune.

I made a brief excursion into Albania, across the lake to Skadar as the Serbs call it or Shkodra as the Albanians themselves term it. That strange old city was the most exotic I had ever seen, where the natives wore an extraordinary costume, a long white fustanella or skirt, a sleeveless jacket, and on the head a flat round fez with an enormous blue silk tassel. The countrymen were dressed entirely in white with white fez, so they looked like clowns. The Malisori, primitive mountaineers, wore white felt tights with black braided side stripe, and all carried full bandoliers, with pistol in belt and rifle over shoulder. That was the first time I had entered the Ottoman Empire, of which Northern Albania was then a *vilayet*, or province.

How remote are those days from ours! I was there in time to see them unchanged from their secular sleep, in exactly the same condition as they had been centuries ago before the impact of a levelling civilization. There were still three Emperors in Europe and a Sultan, and I actually felt a thrill from the fact that I was in a country in which there had been warfare in my lifetime. Albania and Montenegro, so different in many ways yet similar in others, were both relics of the middle ages, of the days of romance, of chivalry, of single combat by champions in warfare, where men wore gorgeous costumes and walked about armed to the teeth and ready to use their arms, preserving queer customs including the vendetta, tribal organizations, and feudal loyalty. I can hardly imagine that these primitive and hardy mountaineers can be happier under the intransigent régime of Communism.

Current Notes

Once more it would seem that we are faced with an attempt at mass extermination in the true Hitlerian style. We cannot say that we love the proposed victim, *Pieris brassicae* Linn., but we would sooner see it controlled by the little golden cocoons of *Apantales* than exterminated by a virus. This, however, we are informed by *The Times* (4th Nov.) is what is proposed for the coming year.

A large number of larvae are being forced with artificial light during the winter months so that they may be infected by the virus and distributed to various parts of the country. There they are expected to die in four days and liquefy, the highly infectious liquid being spread over the plants by rain, and in case this is not enough, it is also proposed to spray the cabbages with a weak solution of the virus to spread the "good work" as rapidly as possible.

Having recollections of our cultures of this species made in our youth without proper attention to hygiene, the disgusting smell of the dead and dying larvae makes us think that our cooked cabbage will not be "as mother made it" while the more hardy vegetarians who prefer their cabbage raw and unwashed, at the best will find the flavour will be spoiled, and at the worst, we may see these goodly folk expiring and liquefying in similar manner, infecting vegetarians and carnivores alike!

Have we not learned our lesson from the artificial spreading of myxomatosis? When Dame Nature's jealously kept balance is upset, her stick falls heavily on guilty and innocent alike, so let us leave the major part of control to the efficient little *Apantales* and content ourselves with the finger and thumb collection of larvae for immersion in the jar of brine to satisfy our anger when the outer leaves of our cabbages are eaten.

As evidence of the efficiency of *Apantales*, the heavy infestation of about five years ago was so heavily parasitized that I was informed by one dealer who took over 10,000 larvae for a research establishment, only something under twenty imagines resulted, and the species has not been plentiful until the heavy immigration of the past summer.

The *Lepidopterists' News*, Vol. IX, Nos. 2 and 3 (10th August 1955) is in our hands, and we can very truly say that this publication, the organ of the Lepidopterists' Society, goes a very long way towards filling the want for co-ordination of international entomology.

The present issue carries a long classified list of publications on lepidoptera from all parts of the world, and a foreword states that it is hoped to keep up to date with the publication of notices of all such papers published since 1946, and asks for notice of omissions to be sent to Dr. Bellinger at the University College of the West Indies, Mona, St. Andrew, Jamaica, B.W.I. A short abstract of each publication follows the title, giving the subject matter in brief.

The notices are classified under six heads, say: General, Systematics and Nomenclature, Morphology and Cytology, Variation and Genetics, Distribution and Phenology, and Physiology and Behaviour. In each section the works are set out under authors' names in alphabetical order.

This number also contains the presidential address given by Dr. A. Diakonoff, an excellent study of the lepidoptera of Madagascar together with an enlightening sketch of its topography by Pierre Viette and several other most interesting papers.

The July and August numbers of the publication of the Vienna Entomological Society have also come to hand during the past month. These contain further parts of Charles Boursin's work on the Chinese *Agrotis* species (Parts III and IV) for which a series of seven plates had been prepared but these were not ready in time and will appear with the next number. Erich Kromer deals with some apparently new aberrations of *Pieris napi* L., while Leo Schwingenschuss publishes a number of corrections and further notes on lepidoptera in three works: "The Lepidoptera of Northern Lebanon" by Dr. Hans Zerny (*Entom. Zeitschr. Iris*, Dresden, Vol. 46), "The Lepidoptera of the Great Atlas in Morocco", Rabat, 31st December 1935, also by Dr. Zerny and his own work on the Lepidoptera Fauna of Iran: *Ent. Zeits.*, Vol. 52/53, No. 46.

S. N. A. J.

The Times of 8th November contained a report of the Forestry Commission's proposals to enclose another 5,000 acres of the New Forest for timber growing. Authority is sought from the Verderers to enclose, in all, 37 areas, the average size of each area being not more than 135 acres. The enclosing and planting is likely to take many years, and in selecting the sites attention has been paid to grazing rights and public amenities. It was asserted that during the past five years 495,000 hardwood trees—nearly all oak and beech—had been planted in the forest.

This project is meeting with strong opposition by the commoners of the Forest, one criticism being that the scheme would cause more animals to go on to the roads. The president of the Forest Commoners'

Defence Association is reported to have said that recent meetings held throughout the Forest had given him the impression that opinion was unanimous against further enclosures for woodland and that one of the proposed sites was of 475 acres. The matter is to be further considered by the Court of Verderers after this month's election of verderers.

A British Section of the International Union for the Study of Social Insects has now been formed. Membership is open to all those interested in any aspect of the study of gregarious or social insects. The subscription is ten shillings a year, which includes the membership fee for the International Union. Further information can be obtained from the Secretary, Dr. C. G. Butler, Bee Department, Rothamsted Lodge, Hatching Green, Harpenden, Herts., to whom applications for membership should also be made.

Winter Work for the Microlepidopterist

By L. T. Ford.

The larvae of many species of "Micro", which feed or spin up in seed heads, stems or roots, can be collected during the winter months when other entomological outdoor work is at a standstill.

Seed heads of Teazle will produce larvae of *Endothenia gentianana* Hüb. and *Phalonia roseana* Haw., the former feeding on the pith and the latter on the seeds. Seed heads of Burdock contain larvae of *Phalonia badiana* Hüb. and *Metzneria lappella* Linn.

Seed down exuding from the heads of the Reed Mace is a sure indication of the larvae of *Limnoecia phragmitella* St., while seed heads of the Cotton Grass (*Eriophorum*) can be collected for the larvae of *Glyphipterix haworthiana* Steph.

If a dead flowering stem of Yarrow be gently pulled, it will often come away with a small portion of root. Nearly as often as not, the portion of root adhering to the stem will contain a larva. In this manner larvae of *Hemimene petiverella* Linn., *H. politana* Guen., *H. sequana Hüb.*, *H. plumbagana* Treits., and *H. plumbana* Scop. can be obtained in plenty. Similar treatment of Tansy may produce larvae of *H. flavidorsana* Knaggs, *H. tanaceti* St., and *H. saturnana* Guen. and with Dog-Daisy, larvae of *H. alpinana* Treits. and *H. aeratana* Pierce. The larvae of some of the Tansy and Dog-Daisy feeding species usually feed rather far down in the root and it is necessary to examine the portion on the stem for signs of the larval feeding: if this is present but the larva is absent, the portion of root left in the ground should be dug up.

The larva of *Phalonia rupicola* Curt. hibernates full-fed in a piece of dead stem of Hemp Agrimony lying on the ground at the base of the plant. Bits of stem two or three years old seem to be preferred to the last season's growth.

Fallen cones of Scotch Pine can be gathered for larvae of *Laspeyresia conicolana* Heylaerts; a tenanted cone shows no sign of the larva within, so it is necessary to gather a large number of cones in order to obtain a series of the moth. The species seems to be widely spread, at any rate in the southern counties.

Seed heads containing larvae should be spread thinly on sand or light loam in a seed box and kept out of doors for the winter, protected from rain, birds and mice. Roots can be planted close together—fifty or more will go into an ordinary seed box—and be fully exposed to the weather.

Notes and Observations

BRACHIONYCHA SPHINX HUFN.: A POSTSCRIPT.—In my article on this species in the February *Record* I mentioned (**67**: 51) that one of my pupae was obviously going over for another year. From this pupa a moth duly emerged on 4th November. It was a very fine specimen of a female.—H. SYMES, 52 Lowther Road, Bournemouth. 7.xi.55.

A NOTE FROM CORNWALL.—I had a *Leucania unipuncta* Haw. and a *Rhizedra lutosa* Hb. in the m.v. trap this morning. Is not this rather a late date for these species? I saw a *Macroglossum stellatarum* L. at geraniums on 5th November also. This was after three nights of fairly keen frost. Another specimen of *stellatarum* is trying to hibernate in my front (glass) porch. I will report further progress.—Col. H. G. ROSSEL, Bodinnick, Lanteglos by Fowey. 7.xi.55.

A NOTE FROM CUMBERLAND.—In the late summer or early autumn of this year (1955) I took three species which are scarce, or not previously recorded, in Cumberland, viz. *Rhizedra lutosa* Hüb., *Dasypolia templi* Thun. and *Euxoa obelisca* Schiff. Two specimens of *lutosa* were captured, and one each of the others.—W. F. DAVIDSON, 9 Castlegate, Penrith.

THE M.V. LAMP IN NORTH CUMBERLAND, 1955.—I was able to work a trap near Brampton, Cumberland, from 12th August to 17th September 1955. The main records of interest were as follows:—

Eurois occulta L. Twenty-five appearances in the trap between 14th and 31st August. All rather worn and a pale form. The maximum on one night was five on 23rd August.

Amathes depuncta L. One ♀ in fresh condition on 17th August. There have been few recent records in the county.

Rhizedra lutosa Hüb. One fresh ♂ on 16th August. This may be a new county record.

Alcis jubata Thun. One ♂ on 15th August. I have taken odd specimens in previous years and no doubt it is a resident though uncommon.—Major General G. F. JOHNSON, Castlesteads, Brampton, Cumberland. 20.x.55.

AN ENTOMOLOGICAL SPOONERISM.—Of making spoonerisms there is no end, but there is one which, I think, would have appealed to Dr. Malcolm Burr and is not altogether out of place in an entomological journal. After going through a very inaccurate piece of composition with one of his pupils, Dr. Spooner is said to have remarked, "Mr. Smith, there are far too many prowlers in your hose". H. SYMES, 52 Lowther Road, Bournemouth. 22.x.55.

AN ABERRATION OF PARARGE MEGERA LINN.—In the *Record* for July/August 1950 (Vol. 62, p. 65, plate IV) a specimen of the Wall Brown butterfly was recorded and figured which was remarkable for having the ground of all wings translucent. The specimen, a female, was reared from eggs laid by a typical female captured at Lindrick, S. Yorks., in 1940.

In August of the present year I caught a large typical female in the same locality, and from the eggs subsequently laid twenty-five specimens were reared. Four of these showed similar aberration to the 1940 specimen. In the brood there were twenty-one females and four males, the aberrant specimens being all of the former sex. None of them showed any weakness or crippling, and so far as could be judged indoors they were capable of normal flight.

I now propose to name this form:—

ab. *transparens* nov. ab.

Type ♀, reared 1940, Lindrick, S. Yorks. Figd. *Ent. Rec.*, **62**, Plate IV.

Paratypes: 4 ♀♀ reared 1955. Lindrick, S. Yorks.

Description:—Wings translucent, the spotting and borders being least affected. The aberrational condition present on both upper and under surfaces and the affected areas symmetrical.—T. D. FEARNEHOUGH, 13 Salisbury Road, Dronfield, Derbyshire.

IMMIGRANTS NOTED DURING 1955.—During a short trip to the West Country, my wife and I saw some twenty *Colias croceus* Fourc. between 30th July and 4th August. Early on the morning of 1st August, I saw a male *C. hyale* L. fly low and fast in from the sea at Yarmouth Sound, South Devon.

My small son and his great aunt caught a male *Herse convolvuli* L. on 14th August at Wareham, Dorset.

Lastly, two females fell to the m.v. trap in the garden here. The first, on 18th August, was an absolutely fresh but infertile *Leucania albipuncta* Schiff., while on 19th August there was a fresh *Margaronia unionalis* Hübn. The latter I passed over to my brother who successfully bred a series from it, and was also able to distribute larvae to other collectors.—G. E. L. MANLEY, Chalvington House, Nr. Hailsham, Sussex.

FOODPLANTS OF XYLOMIGES CONSPICILLARIS LINN.—I must draw attention to Mr. H. Symes's "Notes on *Xylomiges conspicillaris* Linn." in the October issue of the *Record*. Mr. Symes categorically states that this species does not eat elm or oak. This is incorrect in so far that Dr. H. B. D. Kettlewell reared a brood on elm suckers and found the pabulum highly satisfactory. His method was to invert a tea chest over the foodplant and let them "get on with it". Since then I have personally used elm on partly grown larvae and had no trouble in rearing them to full growth. I recorded Dr. Kettlewell's experience in my article, "A List of Previously Unrecorded Foodplants . . . ", *Ent. Gaz.*, **3**: 59.

So far as oak is concerned, I have no experience, but if the elm and oak were close together, it seems probable that the larvae fed on the elm and pupated under the nearby oak.—H. E. HAMMOND, 16 Elton Grove, Birmingham, 27.

ACHERONTIA ATROPOS LINN. IN CORNWALL.—As a postscript to my 'Notes from South-East Cornwall' (*Ent. Rec.*, **67**: 283) I may mention that our parish policeman has just brought me a badly mutilated newly-emerged *A. atropos*. The farmer who sent it thought it might be a Colorado beetle and tells me he has destroyed four pupae as possibly "harmful". I can see I must try to spread the light, next potato digging, by a few sketches and offers of a small reward.—Colonel H. G. ROSSEL, Bodinnick, Lanteglos by Fowey, Cornwall. 7.xi.55.

HYDRIOMENA FURCATA THUN. IN THE DAYTIME.—In the *Record* for October 1955, on page 265, W. E. Minnion decries Ford's assertion (*Moths*, p. 171) that *H. furcata* is "largely day-flying". In my experience that insect is frequently met with by day, at least in the mountains of North Wales, where I have done much collecting and where it is often to be seen flapping about at all hours in the damp and bushy lanes, with low hazel hedges, which are so typical of the country in that part of our island.—J. ANTONY THOMPSON, Milton Lodge School, Wells, Somerset. 10.xi.55.

PHALONIA IMPLICITANA WOCKE IN NORTH LANCASHIRE.—When on a short visit to Walney Island on 2nd August this year I was examining *Matricaria* to see what insects I could turn up on that plant which grew in profusion along the upper limit of the shingle. I took a small moth—obviously a *Phalonia*—which I did not recognise as one I had ever taken before. Closer examination after this was set, including examination of the genitalia for it was a male, proved it to be *Phalonia implicitana* Wocke. My friend, H. N. Michaelis, the recorder of Lepidoptera for Lancashire, has seen the insect and confirms the identification. The species has not been previously taken in Lancashire.—Dr NEVILLE L. BIRKETT, 3 Thorny Hills, Kendal. 15.xi.1955.

CELERIO GALII SCHIFF. AND OTHER RECORDS FROM WESTERN GERMANY. —I was very interested to note in the September number of the *Record* (vol. 67, No. 9) the astonishing amount of *Celerio galii* recorded from many parts of England. Here too, in Luneburg, it is by no means absent. I have taken three larvae on hedge bedstraw, two of which unfortunately were found lying on a patch of their foodplant, slightly damaged, and they never survived. The third, however, found on 5th September, fed up quickly and pupated successfully on the 13th of the month. No doubt, given more time to collect, others would have been found, but I'm afraid I was restricted too much to the area round about the camp. *Deilephila porcellus* L. (2) and *D. elpenor* (7) were taken during my searching for *galii*, and a further 18 *elpenor* were found on willowherb on 8th, 10th and 14th September. Hawkmoths appear to be fairly plentiful out here, the commoner species, *Mimas tiliae* L., *Laothoe populi* L., *Smerinthus ocellata* L., and *Sphinx ligustri* L., all having turned up regularly during the season. Undoubtedly, though, *Hyloicus pinastri* L. is the commonest of the family as far as this part of the world is concerned, having turned up everywhere I've collected.

The 'Bombyces' have been very well represented throughout the season, especially the Prominents. *Lophopteryx cucullina* Schf. appeared to be fairly common in Hannover earlier in the year, while *Pheosia tremula* Cl., *P. gnoma* Fab., *Notodonta ziczac* L., *N. dromedarius* L. and *Pterostoma palpina* Cl. have all been quite plentiful in

Luneburg. *Lophopteryx capucina* L. of course abounds everywhere, and I have taken one larva of *Leucodonta bicoloria* Schf. on birch, 18th September.

Other captures in the family include *Harpyia bicuspis*, 3 larvae on birch, 20th, 21st and 23rd September; *Stauropus fagi* L., 3 larvae on oak, 11th, 15th and 21st September; *Dasychira fascelina* L., 1 male at light, Hannover, 28th June; *Leucoma salicis* L., 2 at light, Hannover, 19th and 23rd July; *Lymantria dispar* L., 6 males at light, Luneburg, 21st-28th August; *Trichiura crataegi* L., 4 males at light, Luneburg, 27th August-7th September; *Dendrolimus pini* L., 1 larva, Luneburg, 20th August; and *Pseudoips prasinana* L. (*bicolorana* Fuess.) and *Bena fagana* Fab., a few larvae of each during September in Luneburg. *Lasiocampa quercus* L., *L. trifolii* Schf. and *Macrothylacia rubi* L. are all very plentiful in Luneburg.

From the many Noctuids and Geometers taken some of the more interesting include *Luceria virens* L., fairly common at light during August in Luneburg; *Actinotia polyodon* Cl., 2 males at light, Luneburg, 22nd and 23rd August; *Plusia festucae* L., 1 male at light, Hannover, 19th August; *Catocala fraxini* L., 1 female, Luneburg, 25th September; *Laspeyria flexula* Schf., imagines fairly common in Luneburg during August; *Hypena rostralis*, fairly common in Hannover, early May; *Geometra papilionaria* L., has been common all through the season in Hannover and Luneburg; *Semiothisa liturata* Cl., fairly common in Luneburg; *Ennomos autumnaria* Wernb., 6 males, Luneburg, 12th-24th September; *Apoda avellana* L., 1 male at light, Hannover, 10th June; and *Cossus cossus* L., 1 larva, Luneburg, 12th September.

So ends another collecting season (almost), but it is one that will have many happy memories for years to come, in this my first year's collecting outside the United Kingdom.—Pte. F. G. SMITH, 11th Field Dressing Station, R.A.M.C., B.A.O.R. 8.

DIPTERA

On *Rhagio strigosa* Mg. (Dipt., Rhagionidae)

By L. PARMENTER, F.R.E.S.

When paying a brief visit to the British Museum (Nat. Hist.) in April, Mr. H. Oldroyd showed Mr. C. O. Hammond and myself a specimen of the above species. It had been captured by Mr. P. Skidmore in 1954 as recorded by him *antea*, p. 153. In July, I decided to pay Box Hill a visit to see whether I could find the species again. All I could remember from my glimpse earlier in the year was that it was yellower than *R. scolopacea* but with similar maculated wings. Mr. Kidd's note in the *Ent. Mon. Mag.*, **91**: 137, declared the mesonotum to have yellow ground-colour and pale yellowish pleurae. His comparison of the wings with *scolopacea* seemed to be of doubtful use in the field. I was therefore disappointed to find on 20th July numbers of a maculated winged *Rhagio* on the tree trunks in the valley near Juniper Hall, with grey thorax and grey scutellum. I examined many with a low power reading glass, as they perched. Two males were taken to be more carefully examined at home.

As in most species of flies there is considerable variation in species of *Rhagio*. *R. scolopacea* varies in size, ground colour, pubescence, colour of wings, legs, etc. Verrall in *British Flies*, 5, devoted a whole page to this variation and stated that the species seemed to have a tendency to produce local races. In this discussion he considered Walker's inclusion of *R. strigosa* Mg. in the British List but dismissed it as a small *dark* form whereas the true *strigosa* Mg. "may be known by its extreme yellowness on the pleurae and scutellum". Verrall's dates for *scolopacea* were 21st May and 23rd July, so that Mr. Skidmore's date of 29th July suggested that *strigosa* might have a later flight period but I must admit that Verrall's dates could be extended by British dipterists for I have dates ranging from 12th May to 8th August.

Examining my two males I noted that the stigma was isolated whereas in my series of *scolopacea* the stigma was generally joined to the basal spot of R_4+_5 as Mr. Kidd had pointed out. However in some individuals of *scolopacea* the spot and stigma were well separated. The ground colour of the mesonotum of both males and of my *scolopacea* series was grey in each case; the scutellum grey with a tip of yellow in most cases in *scolopacea* but in the two Box Hill males the yellow area extended around the edge and just over the lip onto the disc. But whereas all my male *scolopacea* had all the pleurae grey, the two Box Hill males had a grey sternopleuron, a grey mesopleuron with a yellow hind edge, but the remaining pleurae were yellow. I therefore considered that after all my Box Hill captures were *strigosa* Mg., probably the second and third taken in this country and that the species was quite numerous at any rate in that particular valley of Box Hill on that warm sunny day.

However, on further examination I found a character which, in the males, at any rate, may make the identification of *strigosa* easy and certain. In *scolopacea*, although the length of the third antennal joint varies and also its colour from yellow to grey, the length is always greater than its depth. In *strigosa* males from Box Hill, the third antennal joint is yellow and taller than long. Also the third joint is as small or smaller than the second whereas in *scolopacea* the third joint is always larger than the second. This character should hold good in the female.

It is hoped that in future visits further specimens, to include females, will be taken in moderation for until collections have been re-examined and fresh material of the maculated winged *Rhagio* examined, it is uncertain how local the species is and how long is its flight period in this country, at present, known only as 20th-29th July.

94 Fairlands Avenue, Thornton Heath, Surrey. 23.10.55.

SPHEGINA VERECUNDA COLLIN (DIPT., SYRPHIDAE) TAKEN IN SOMERSET. —In Coe's *Syrphidae* volume of the Royal Entomological Society's series of Handbooks, this species is recorded from Cornwall in addition to the original localities, Radnor and Herefordshire, quoted by Mr. J. E. Collin when describing the species, *Ent. mon. Mag.*, 1937, **73**: 182-5.

When attending the ninth Congress of British Entomologists at Bristol in July, I accepted Mr. E. C. M. d'Assis Fonseca's invitation to spend the delightfully sunny afternoon of 23rd July visiting a favourite haunt of his and of Dr. H. E. Hinton, at Failland, in Somerset, close to Bristol. The habitat interested me, not being one to be found in the counties around London. Its attraction was the swift brook running through a damp woodland. The diptera fauna was rich and I was delighted to be shown several *Sphegina* flying around. Having only three specimens of *clunipes* Fln., from Pembrokeshire and Surrey, and a single *kimakowiczi* Strobl from Hampstead Heath, London, I netted seven specimens. I anticipated that they would probably be *clunipes* as this was the only species mentioned by Audcent for Somerset or Gloucester in his 'Bristol' list, 1948-9, *Proc. Bristol Nat. Soc.* To my surprise, on examination, I found that all three British species were present—two male *clunipes* Fln., two male, two female *kimakowiczi* Strobl and a male *verecunda* Collin.—L. PARMENTER, 94 Fairlands Avenue, Thornton Heath, Surrey. 23.x.55.

Fifty Years Ago

(From *The Entomologist's Record* of 1905).

LEPIDOPTERA NEAR GENEVA.—This heading must resemble much the historical one "Taking coals to Newcastle", yet, in spite of the fact that there used to be a Genevois entomological magazine, which has (since this was first written) been resuscitated, and that some first-class lepidopterists live there, the local men rarely note anything of their own fauna, taking it for granted that everyone knows all about it, and writing, when they do write, of faraway places they visit, and of insects they know little about. It is, of course, the same annoying fact that leads the lepidopterist who lives on the Yorkshire moorlands to describe his visit to the New Forest or to Devonshire, the Devonian lepidopterist to describe his visit to Perthshire or Cumberland, and the Cumbrian lepidopterist to describe a visit to the Norfolk Broads, whilst they rarely describe the lovely districts and interesting fauna that they know so well, and could describe so interestingly.—J. W. TUTT.

M. PARTHENIE AND M. ATHALIA.—The insect of the slope was *Melitaea parthenie*, and, as I meant business now that the chance offered, I took my series from this locality. I dare not say how many examples I netted, but when the final rejections had been made I set about 100 first-class individuals that I had captured. I feel vaguely indifferent on this group to specific distinction. I dare not say I do not know *M. parthenie*; as a matter of fact, when I tie my brother collectors down to facts and descriptions, I find that I am even clearer than they; nor dare I say that I do not know *M. athalia*, since we have been personally acquainted for the last 35 years, and I have seen, possibly, a few thousand on the wing. Strangely enough I know they are distinct species, their habits, habitat, and *tout ensemble* proclaim them such. I know now that my autumnal Grésy-sur-Aix *athalia* (so recorded) are *parthenie*, but, for the life of me, if they were offered me individually, I guess I should name half wrongly. We Britishers must work out this business somehow, even if we have not the double-brooded *parthenie* in Britain.—J. W. TUTT.

UP IN THE MOUNTAINS.—I lost account of time and place. I filled my boxes and used up all my pins, lost my companions, and—in spite of it all—was happy. What worry I gave them to find me I knew not, and cared less, but when I came on them, and found they had lunched and drank, I began to wonder what the time was as the end of the afternoon was near, so that Muschamp and myself went off to the cottages, a quarter of a mile below, and drank the local wine and ate the local bread and cheese, till nature was satisfied. That I missed two fine *Euvanessa antiopa* on the way back was not due, as was mildly suggested by my companion, to the fact that I had lunched, but to the excitement and heat of the day, for that day was hot, and when we got back, a similar protest, that I could not hope to take all the *parthenie* on the slopes and get to Gex in time for the train, was sufficient to keep me on the move. It was a lovely day.—J. W. TUTT.

Current Literature

BIRD AND BUTTERFLY MYSTERIES. By Bernard Acworth. Pp. 303, 3 colour plates and numerous text figures. Eyre & Spottiswoode. Price 30/-.

The way of the pioneer is often hard whether in the sphere of physical endeavour or in thought. That the author of this book is a pioneer is obvious but at the same time it does not further his cause to base his arguments on premises demonstrably false or by procrustean efforts to make 'facts' fit his theories. Theories are attempts to give meaning or explanation to observed facts and as such they should be based on facts.

This new issue of the author's two previous books in one cover is divided into three parts. Part I concerns "Bird Migration and Other Phenomena". This is also of importance to the third part on Butterflies because in it he gives his now well-known theories on flight. In a nation which has become so air-minded since 1940 much of his argument is unnecessary and much of his criticism of other writers on the subject of bird flight concerns writings of the pre-1930 era when knowledge of elementary matters in aerodynamics was not widespread among biologists. He also complains that his theories of flight (Laws of Currents) have not been expounded in texts of biology. Here again he reveals the fact that he is not up to date with the literature of his subject because C. B. Williams *et al.* in *Trans. Roy. ent. Soc.*, Vol. 92, p. 229, discuss his theories. In Chapter 5 he makes an 'assumption' and it seems that in making this assumption he begs the question of the main problem of migratory flight whether in birds or insects. He assumes that all these air-borne creatures have an *unfailing* ability to find the way to the place where they were born, this ability being inborn and, therefore, instinctive. To your reviewer's mind to explain a phenomenon as an instinct merely begs the question and does not explain it.

In Part II of the book we have an highly entertaining account of the author's explanation of "The Cuckoo Mystery". The principal problem here seems to be how to explain the fact (?) that cuckoos' eggs are found in nests so small and with such small entrances that they are quite inaccessible to the female cuckoo for purposes of ovipositing. It is suggested that cuckoos are hybrids between the foster maternal parent on the one hand and the male cuckoo on the other! The fact that cuckoos are or are not hybrids should be fairly readily ascertain-able by cytologists and geneticists—but no such evidence is cited in the book. On the contrary the geneticists, like the rest of orthodox biologians, come in for severe criticism, criticism not any easier to bear when one notes how gross is the author's error in the interpretation of simple Mendelian principles on pp. 169-170.

But it is the theories of Part III of the book which are of the most interest to entolomologists. In this part on "Butterfly Migration and Other Phenomena" our author really 'goes to town', demolishing the hard-won edifices of knowledge produced by scientific investigators throughout the ages! One would have every sympathy with this attitude if the criticisms were based on up to date material. But this is not the case and all too often we realise that the author does not appear to have read anything on butterflies since about 1939. Harry Eltringham's great achievements in the field of butterfly senses come in for the severest criticism—much of it captious and quite uncalled for. Again, in discussing the geographical races of *Aricia agestis* we are given a critique on the views of Newman (whose book on butterflies was published in 1871!).

His theory of migration whether in reference to birds or butterflies is based on the fact that if the wind is sufficiently strong a butterfly or bird will be unable to regain the starting point of any flight on which it sets off from its home. It will arrive back at a point down-wind from it. Therefore life is easy—in the autumn the Painted Ladies are blown away south, they winter in North Africa and in the following spring, favourable winds then blowing (it is piously hoped), they feel the urge to go 'home' and so they make use of their assumed homing faculty and fly home. This entirely neglects the fact that Painted Ladies *breed* in North Africa and it is the progeny of the autumn southern migrators that return north in the spring. If Captain Acworth wants us to accept his theory then the first evidence he must produce is the recording of a butterfly marked in England, caught and released in North Africa, and recaptured again in England the following spring. Not easy evidence admittedly but the only way to prove his theory.

There are three illustrations in colour—a map of migration routes of the American Golden Plover, a plate of Cuckoo Eggs and the third plate illustrates the life history of representative species of British Butterflies. In this case one of the butterflies is the Large Blue and the fact that it is associated with ants—surely a fundamental of its life history—does not seem to concern the author. There are various text figures to illustrate the author's theory of flight and Fig. 11, meant to demonstrate how a moth resembles an aeroplane, seems to be a sheer waste of space and ink.

It is obvious that the whole object of this book is to provoke criticism and so the reviewer has also felt justified in 'going to town' on the matter. At the same time let it be made quite plain that he is not in any way criticising Captain Acworth's very sincere religious faith—a faith constantly to the fore throughout the whole book.

The volume is well produced but is not cheap at 30/-.

N. L. B.

EXCHANGES AND WANTS

Wanted.—A subscriber wishes to purchase rare and extreme forms (British) of *Lysandra coridon* Poda.—*Box No. 5, c/o the Assistant Editor, No. 4 Windhill, Bishop's Stortford, Herts.*

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Manager: P. B. M. ALLAN, 4 Windhill, Bishop's Stortford, Herts.

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The following gentlemen act as Honorary Consultants to the magazine: *Lepidoptera*: S. N. A. JACOBS, F.R.E.S., Dr. H. B. WILLIAMS, Q.C., LL.D., F.R.E.S.; *Orthoptera*: D. K. McE. KEVAN, B.Sc., F.R.E.S.; *Coleoptera*: A. A. ALLEN, B.Sc.; *Diptera*: L. PARMENTER, F.R.E.S., E. C. M. d'ASSIS-FONSECA, F.R.E.S. *Business*: P. SIVITER SMITH, F.R.E.S.

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EXCHANGES and ADVERTISEMENTS to F. W. BYERS, 59 Gurney Court Road, St. Albans, Herts.

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